



**GenomeCanada**

JANUARY 2023

**Genome Canada  
Corporate Plan  
2023-24**

Genome Canada's main office is located on the traditional, unceded territory of the Algonquin Anishnaabeg.

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**Genome**Canada



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# 1.0 About Genome Canada

## Organizational context

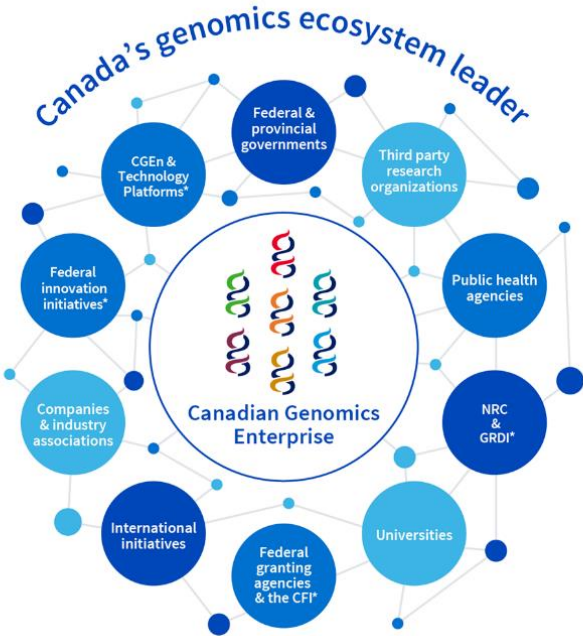
Genome Canada takes a high-impact, Challenge-driven approach to harnessing genomics to improve lives, strengthen communities and drive economic growth for the benefit of all Canadians.

As an independent, federally funded not-for-profit organization, we provide national leadership to Canada’s genomics ecosystem. We work in partnership and across sectors to drive investment and coordinate, connect and diversify genomics research, innovation, data and talent initiatives to meet global challenges. And we work closely with the Canadian government and other federal research and innovation ecosystem partners to align with and address national priorities. We do this in partnership with a pan-Canadian network of Genome Centres to reflect regional and provincial priorities and extend our impact through regionally focused programs, proactive business development and strong industry connections. We acknowledge the systemic barriers that exist and are on the path to ensuring that we execute our operations, governance, policies, procedures and programs through an inclusion, diversity, equity and accessibility (IDEA) lens.

We are Canada’s genomics voice on the global stage and a world leader in the exploration of the intersection of genomics and society—promoting the equitable and responsible uptake of genomics for the benefit of communities. We are working to redress historic and ongoing inequities in genomics and lifting up Indigenous genomics leadership, as well as committing to action to advance an equity agenda for genomics in Canada and abroad.

Genome Canada’s Challenge-driven approach brings together the genomics ecosystem to address opportunities. We leverage investments by government, industry, university and non-profit partners to drive commercial and social impacts.

The Canadian Genomics Enterprise is a unique pan-Canadian network comprising Genome Canada and six independent regional Genome Centres. Funded primarily by provincial governments, the Genome Centres are regional economic drivers. They broker successful cross-sectoral partnerships with



NRC & GRDI: National Research Council and the intramural Genomics Research and Development initiative  
CFI: Canada Foundation for Innovation  
CGEn is a federally funded national platform for genome sequencing  
Federal innovation initiatives: Global Superclusters, Strategic Innovation Fund, Pan-Canadian AI and Quantum Strategies



researchers, industry and other end users through hands-on business development and partner support, knowledge mobilization and project management, and strong regional ecosystems that extend our national impact.

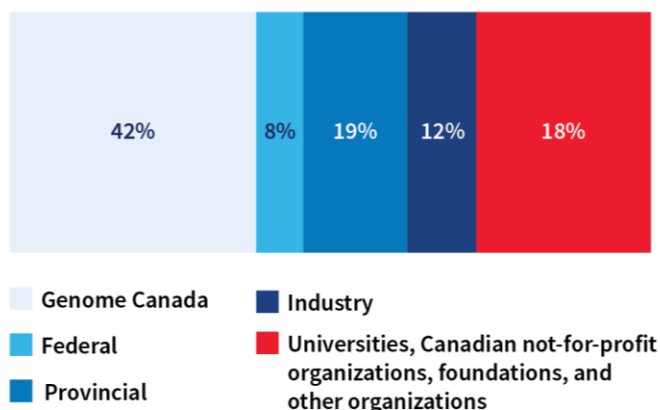
Value-add elements of our federated model include:

- **Convening and coordinating power.** We have deep experience convening multi-sector groups to address genomics challenges through research, innovation and knowledge mobilization activities.
- **Robust international connections.** Our 22 years of connections help Canadian researchers and firms benefit from and contribute to global perspectives, research results and partnered initiatives.
- **Highly leveraged funding.** Our alignment of federal, provincial and industry priorities results in 1.4 additional dollars for every federal dollar invested, with impacts that address shared needs.
- **Proven accelerator success.** We fuel the growth of existing companies and spin-offs through research projects and trainee skills development.
- **Engagement with policy and regulatory bodies.** Our ability to facilitate dialogue between researchers, innovators and policymakers enhances implementation and uptake of genomics.

## Charting our way forward

Securing co-funding through partnerships is central to our business model. Bringing together diverse partners to co-invest in Canadian genomics research aligns efforts and benefits society. In collaboration with the Genome Centres, Genome Canada has leveraged \$1.8 billion in federal funding plus \$2.5 billion in co-funding since 2000, for a total investment of \$4.3 billion for genomics research and innovation in Canada. This includes funds announced in Budget 2019, as well as the \$40.0 million announced in April 2020 to fund the Canadian COVID-19 Genomics Network (CanCOGeN) as part of federal countermeasures to address the pandemic.

Investment by Genome Canada and co-funders since 2000



Drawing on [22 years of experience](#) engaging at the regional, national and international level, and as Canada's national organization dedicated to harnessing the power and potential of genomics, we are committed to mobilizing the capacity of this cutting-edge science and technology to improve the lives of Canadians. We welcomed the federal government's recognition in Budget 2021 of genomics—along with AI and quantum—as a



platform technology that will drive growth as an innovative sector of the future. Specifically, the government announced [\*\*\\$400 million for a new Pan-Canadian Genomics Strategy\*\*](#), citing the key role of genomics in Canada's fight against COVID-19, its potential to improve Canadians' health and well-being while creating good jobs and economic growth, and Canada's global leadership in the field. The government provided \$136.7 million to Genome Canada from 2022 to 2024 to kick-start the strategy, now under development by the federal government.

As part of this national leadership, we have shifted our efforts to support strategic, Challenge-driven research—with line-of-sight to application, commercialization and the potential to solve challenges of national and global importance. Building on the success and experience of our large-scale research programs, applied partnership projects, technology platforms, trainee development and other programs, we have oriented the organization around a Challenge-driven framework. This means we identify and focus on areas where genomics will contribute to tangible, impactful and equitable outcomes. These Challenges will develop and diversify the talent and translate the ideas, data and technologies generated through research and innovation into impact. They will improve innovation-based productivity, boost Canadians' health, ensure a secure and sustainable food supply, and support Canada's climate action and decarbonization goals.

As Canada charts a course for resilient post-pandemic recovery and growth, harnessing the game-changing potential of genomics research and innovation—key drivers of the bioeconomy—can deliver homegrown solutions; drive green growth and a low-carbon future; position Canada for global market leadership in key sectors such as agriculture; and, most fundamentally, protect and improve Canadians' lives. Genome Canada's Challenge-oriented multi-stakeholder approach can mobilize the national genomics ecosystem to meet these goals.

This is an exhilarating time for genomics with the realization of its enormous potential. Thanks to sustained federal funding over the last two decades and the achievements of researchers and innovators supported by Genome Canada, the Genome Centres and other partners, Canada is now a powerhouse in genomics. We are poised to build on this success, bring ecosystem elements together, and strategically marshal and mobilize our country's genomics research, innovation, data and talent assets to generate solutions to the big challenges facing Canadians.

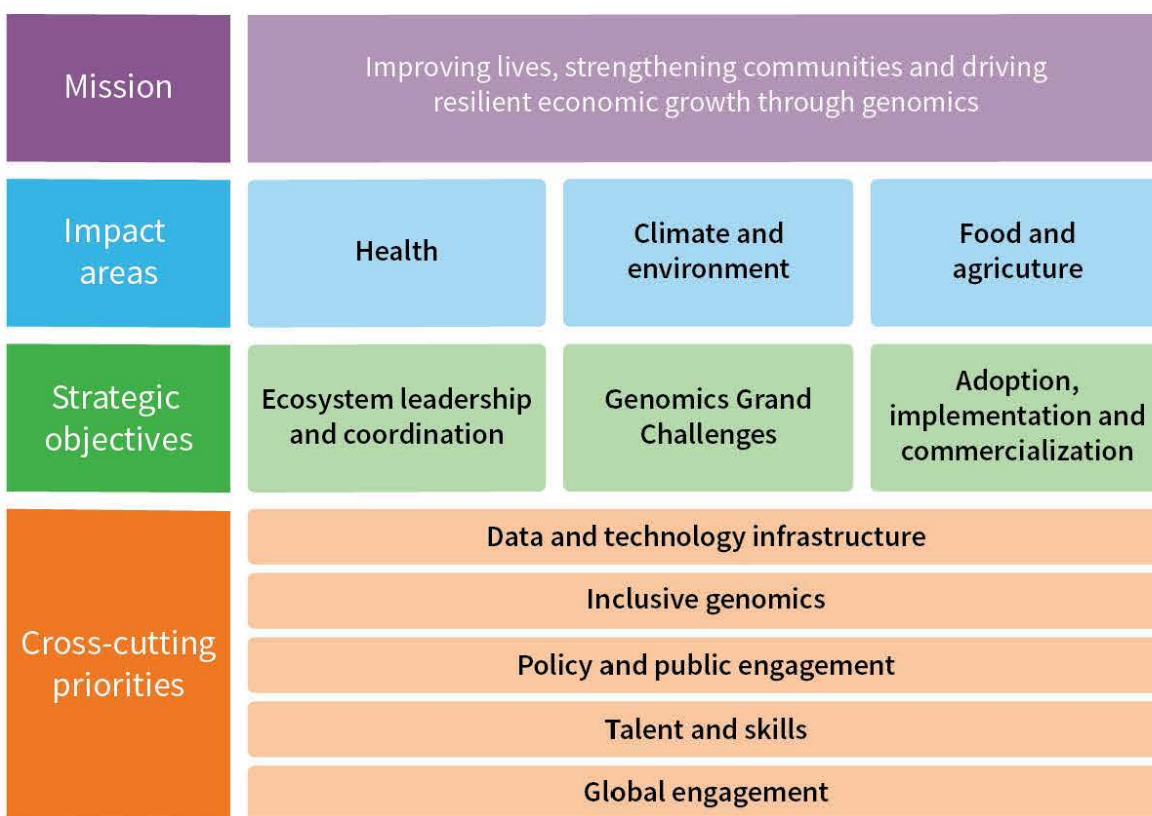
## **Our range of programs**

Challenge-driven initiatives address wicked problems where genomics will have a transformational impact. Challenges are goal oriented with targeted economic, health, environmental and social benefits. For example, [\*\*CanCOGeN\*\*](#) helped address the ongoing SARS-CoV-2 pandemic in Canada through national coordination and capacity building for viral and host genomic sequencing, data sharing and analysis, to inform public health policies and decisions. The [\*\*All for One\*\*](#) Challenge is improving the health and wellness of Canadians with serious genetic conditions by enabling access to a timely and accurate genomic-based diagnosis. Our recently launched [\*\*Climate-Smart Agriculture & Food\*\*](#)

**Systems** Challenge will reduce the carbon footprint of Canada’s food production systems by building their resiliency, environmental sustainability and economic viability.

Genome Canada will also invest in smaller, targeted Strategic Initiatives in areas of importance for Canadians where genomics makes a vital difference such as in anti-microbial resistance (AMR) and emerging pathogen surveillance. Building and innovating from our programmatic toolbox, we design, develop and lead new Challenges and Strategic Initiatives in collaboration with the Centres, end users and key partners. We deliver multi-sectoral and fit-for-purpose programming through both open competitions and directed funding opportunities, supported by five pillars of activity: data and technology infrastructure, inclusive genomics, policy and public engagement, talent and skills, and global engagement. Importantly, we invest in portfolios of interdisciplinary projects connected by cross-cutting knowledge mobilization and data coordination integrated in implementation planning from the outset. The figure below graphically represents our approach to Challenge delivery across key impact areas.

**Genome Canada: Challenge delivery across key impact areas**





## Our commitment to accountability

In delivering our mandate, Genome Canada is committed to applying the highest standards of accountability and transparency to our operations. In pursuit of organizational excellence, we provide a high level of assurance through governance, mechanisms and instruments such as:

- corporate plans and annual reports;
- independent performance audit, compliance audit and evaluation studies;
- rigorous peer review and research oversight committees;
- annual attest audits;
- continuous risk management assessment; and
- structured oversight by the Board of Directors.

We rigorously monitor our budgets, forecasts and expenditures to manage operations in a fiscally prudent manner, while maximizing our investments.

## 2.0 Moving forward into 2023-24

### Genome Canada's strategic vision

#### Our vision

Canada is a world leader in the application of genomics-based biosciences for human health, the environment and across the bioeconomy.

#### Our mission

Genome Canada commits to putting genomics into the hands of those who will use it to create health, environmental and economic benefits for Canadians.

#### Our objectives

1. Drive high-impact research to benefit Canada
2. Deliver effective, purpose-fit programs that support our mission
3. Promote the responsible application of genomics in Canada.

To achieve our vision, we connect people and ideas across public and private sectors through Challenge-driven programming that harnesses the power of genomics research, innovation, data and talent for the benefit of all Canadians.

At Genome Canada, we're excited about the future and our continued evolution into a Challenge-driven, adaptive organization. With the Budget 2021 announcement of a new federal Pan-Canadian Genomics Strategy and investment of \$136.7 million in our strategic



vision, our new approach will mobilize genomics towards achieving tangible impacts for Canada. Our Challenges will translate the ideas and technologies generated through genomics research and innovation into impact in three priority areas: health, climate and environment, and food and agriculture.

This Challenge strategy will mobilize the national genomics ecosystem around shared research priorities. We are also working in strategic partnership with other federal research and innovation funders such as the Tri-Agency, Canada Foundation for Innovation (CFI), National Research Council (NRC) and Mitacs to support the federal biomanufacturing and life science strategy and advance other shared research and talent development goals.

For the 2023-24 fiscal year, we will continue to manage ongoing programs and initiatives funded by the various agreements noted in Table 1 (p. 29). Additionally, we will continue to monitor the COVID-19 pandemic and its effects on funded researcher teams. Table 2 (p. 31) includes a list of our funded programs that will be active in 2023-24.

## Drive high-impact research to benefit Canada

We are continuing the evolution of Genome Canada into an impact-driven genomics funding and investment organization. This includes new thinking around a Challenge structure, key principles and core elements, and selection criteria and considerations, as well as the evolution of current programs and projects to support a Challenge-driven focus.

### Challenges

Based on extensive consultations in 2021-22, we will continue to advance three Challenge areas. To develop and deliver these Challenges, we are engaging the Genome Centres, our existing ecosystem and additional industry partners, end users and federal R&D funders as well as voices traditionally excluded from these processes such as Indigenous voices, Black and racialized voices, and those from other equity-deserving groups.

- **Climate-Smart Agriculture and Food Systems (CSAFS).** Climate change poses a significant risk to our agricultural systems, impacting the availability of food and other vital resources—from fuels to the raw materials used to develop everyday food products. In response to this challenge, Genome Canada has designed and deployed an innovative national genomics Challenge initiative that will support climate change mitigation and adaptation with a laser focus on impact. Genome Canada’s \$30 million CSAFS initiative will translate genomics research and innovation into solutions supporting producers, resilient supply chains and Canada’s food system. Our unique portfolio approach to investment will unlock the value of genomic technologies and data for the benefit of all Canadians and the environment. In 2023-24 this will mean investing in up to eight Interdisciplinary Challenge Teams (ICTs), supporting a data hub for CSAFS genomic data, and supporting a knowledge mobilization and implementation hub to drive portfolio investments towards societal impacts.
- **All for One.** We will advance the goals of this precision health Challenge in rare disease by continuing to support the six clinical implementation projects, policy toolkit and the Development Phase of the Health Data Ecosystem (HDE). The HDE

will allow All for One clinical implementation sites to share data with each other for clinical and research purposes related to rare diseases, and to serve as a model for health data sharing in Canada. We also plan to foster connections between other All for One-relevant investments and partnerships in precision health (e.g., HostSeq, Pan-Canadian Human Genome Library) to build the foundation for of a pan-Canadian precision medicine and genomics strategy.

## Strategic Initiatives

In addition to the above investments, we intend to use our Challenge-based approach to support genomics impact through two smaller-scale Strategic Initiatives:

- **Genomic surveillance for emerging pathogens and AMR.** Launching in early 2023, Genome Canada is developing a Strategic Initiative to fulfil the national need for coordination and implementation of pan-Canadian genomic surveillance for emerging pathogens and AMR in water with a One Health lens. It comprises four streams: (i) a Core Coordinating Centre that combines data and genomics in society, (ii) surveillance projects, (iii) Indigenous and Northern community projects, and (iv) global collaboration and alignment projects. The initial investment will be a Core Coordinating Centre that will play a major role in data standards, data coordination and implementation science across the portfolio of surveillance research projects in this Strategic Initiative.
- **Biodiversity.** Building on Canada's leadership in hosting COP 15 in Montreal, and the strategic presence of Genome Canada and the Centres in convening key partners around this event, we will begin discussions to support connectivity across Genome Canada's investments in biodiversity. This could include designing, executing and overseeing new data hubs for large-scale genomics data that is highly relevant to delivering impacts in biodiversity conservation and monitoring. The investment would bring together Genome Canada-funded large-scale biodiversity conservation projects funded through the 2020 Large-Scale Applied Research Project (LSARP) competition, such as BioGenome, ITrack and BIOSCAN, as well as other Centre investments, in a shared biodiversity data portal and other initiatives to support actionable conservation and biodiversity insights and policy decisions.

## Existing programs

While providing Challenge-driven initiatives, and ecosystem coordination and leadership as part of our role in driving impact from genomics, we are also committed to continuing our support for projects and programs where we have made major investments that run through 2023-24 and beyond. With more than 200 active projects as of 2022-23, Genome Canada works diligently to support the post-award management process throughout the competition lifecycle. This involves working closely with the Centres to provide ongoing management of project changes, extensions, oversight and review of progress and final reports. One of our existing programs includes our flagship industry-facing GAPP initiative, which marked its 100<sup>th</sup> project in 2022:

- **Genomic Applications Partnership Program (GAPP).** GAPP brings together science and implementation to address real world challenges identified by genomic knowledge and technology users from the private to the non-profit worlds. Explicitly designed to accelerate the movement of genomics to social and economic impact, GAPP provides the space for research, innovation and application to thrive collaboratively. Through GAPP Round 23B, we have funded 108 receptor-led projects to date for a total investment of approximately \$437 million, including \$133 million from Genome Canada. With three rounds per year providing flexibility for applicant teams, GAPP is designed to increase collaboration between genomics scientists and users of genomics research to advance the use and implementation of genomic technologies in all sectors of the economy in Canada.
- Our specific commitments for ongoing investment in GAPP, LSARP and other existing programs for upcoming fiscal year 2023-24 are listed in Section 3.0, showing continuity from current fiscal commitments in 2022-23.

### **Deliver effective, purpose-fit programs that support our mission**

We will continue to play a key role in Canada’s research and innovation ecosystem by coordinating activities across the genomics research ecosystem and connecting them into the broader research initiatives supported by the Tri-Agency, public-sector R&D through the NRC and other government funders, and industry-led innovation. We will continue coordinating our programs with provincial and regional initiatives and investments through the pan-Canadian network of regional Centres.

To support this objective, we will:

- **Develop and deliver relevant, purpose-fit programs focused on research excellence and impact.** Challenges are complex research and innovation programs involving multiple stakeholders and a variety of investments. They pursue target impacts rather than short-term research outputs, while being focused enough to align stakeholders and inform real-time decisions on design and changes to the funding approaches. We will continue to adopt a diversified portfolio with multiple Challenges and Strategic Initiatives, each with a fit-for-purpose programmatic toolbox. We will continue to co-develop these toolboxes with the Genome Centres to reflect regional strengths and opportunities as well as user needs and interests. In their ultimate realization, our Challenges will ensure sufficient flexibility to adapt and pivot according to pressing needs and changing environments. This will help ensure that we are proactively, transparently and efficiently managing our investments to successful outcomes.
- **Embed inclusion, diversity, equity and accessibility in everything we do.** We are committed to addressing the underrepresentation of Indigenous and other equity-deserving groups in Canada’s genomics research agenda and landscape, data sets and governance to strengthen community-led approaches and realize equitable benefits. We are also committed to developing a stand-alone, distinctions-based

Indigenous strategy to foster relations that respect and advance self-determination in alignment with the United Nations Declaration on the Rights of Indigenous Peoples. We acknowledge the systemic barriers that exist and recognize that we must strive to include voices and perspectives that diversify our work and extend its reach, so that everyone can benefit from genomics research and innovation. This includes embedding inclusive design into our funding opportunities, adjudication and review criteria for key programs; investing in research with Indigenous communities, on Indigenous lands, and/or incorporating Indigenous knowledge; and supporting education-training-talent pathways that increase the number of early-career researchers and researchers from equity-deserving and underrepresented groups across Challenge portfolios.

- **Strengthen the impact of the research and innovation ecosystem through collaboration and coordination with key ecosystem partners.** We have a long history of working alongside federal departments and agencies, bringing genomics expertise in Canada and abroad to support and add value to federal priorities and initiatives. This can be noted in our identified programs of work and partnerships with the Social Sciences and Humanities Research Council (SSHRC), Canadian Institutes of Health Research (CIHR) and its Institute of Genetics, and through our existing coordination of funding with CFI to help ensure that the platform technologies required for future Challenges are robust and available.
- **Continue to lead a national Genomics Enterprise that recognizes Canada's economic and geographic diversity.** The Genome Centres provide a hands-on approach and deep expertise in brokering successful cross-sectoral partnerships with researchers, industry and other users through project development, mentoring, coaching, pitch support and more. We will continue to optimize the impact of national initiatives through the Centres' in-depth regional knowledge, strong links with provincial governments and regional innovation initiatives and communities, and project management excellence. The Centres will continue to support numerous initiatives to build capacity and address issues in their respective regions.
- **Demonstrate accountability and continually improve programs through robust metrics and measurements.** Research and innovation funding organizations are duty-bound to show that their investments bring value to the communities they serve (deliver impact). As part of redesigning our impact evaluation approach, we are aligning data collection and management strategies across grant management, finance and impact evaluation. The creation of a streamlined data strategy will enable us to create logical connections between investment approaches and the broader impacts of genomics. Through this integrated impact framework, we will outline the impact process of our work, facilitate impact creation and continuous improvement, and capture evidence on impacts. These improvement cycles will occur *within* Challenges, ensuring that they stay on track to deliver on targeted impacts and maximizing return on investment. They will also occur *between* Challenges, ensuring that each successive Challenge incorporates best practices and key learnings from previous iterations to reflect the

evolving innovation ecosystem. Our data strategy will place evidence of realistic and timely delivery of impacts for stakeholders and rightsholders that need it at the centre of our planning and actions. It will do so by using knowledge mobilization plans that are linked to impact evaluation strategies, implementing portfolio management systems that are connected to an understanding of progress along pathways to impact, and applying a strong genomics in society and equity lens to all our activities.

- **Deliver on the Genome Canada research security plan.** We have developed a research security plan consistent with those implemented by other federal organizations, as required by our contribution agreement with Innovation, Science and Economic Development Canada (ISED). We have embedded this plan's guidelines in how we deploy our existing programs and new Challenges and Strategic Initiatives. These guidelines promote the integration of national security considerations into the development, evaluation and funding of research partnerships. We will apply these guidelines to our funding programs, starting with the Genomic Applications Partnership Program (GAPP). Project teams must consider project risks. We will require signatures and possible mitigation strategies to indicate that the project team and the institutions have assessed and reviewed these risks. Projects must agree to adhere to Genome Canada's Research Security Best Practice Guidelines, complete Genome Canada's Research Security Best Practice Checklist, and submit a Risk Mitigation Plan if risks are identified via the Checklist or they are unsure about any factors. Genome Canada will also continue to monitor and audit our own risk in relation to international research security challenges. Research security issues and mitigation strategies will be monitored throughout the lifetime of the project.
- **Strengthen the connections between new knowledge sources and the receptors that translate that knowledge into social, economic or environmental value for Canadians.** Though already substantial, we will continue to increase our level of engagement with the private sector to ensure that our Challenge investments are well-positioned to generate follow-on investment from commercial acceleration and venture capital partners. By better engaging with a broader and more diverse group of receptors that will convert research outcomes into innovative products and solutions, we will enable the researchers who we invest in to convert their work from lab-scale to commercial-scale impacts. This will accelerate getting genomics out of the lab and into the hands of users. For example, in 2022 we announced a [new strategic partnership](#) between Genome Canada and adMare BioInnovations to support the translation of genomics research into commercialization opportunities in healthcare. In 2023-24 we will deliver on the core goals of this partnership by leveraging our individual strengths, networks, programs and expertise.

## Promote the responsible and equitable application of genomics in Canada

Genome Canada and the Centres are world leaders in research on the societal implications of genomics to understand barriers and support the responsible and equitable implementation and uptake of genomics. Among global genomic funders, a dedicated mandate to advance genomics in society (GIS) is a standout hallmark of the Enterprise, with the Centres driving knowledge mobilization, translation and public engagement across the regions.

To support this objective, we will:

- **Integrate GIS into all our Challenges.** We will do this from the start of design and planning, through execution and implementation, all the way to transition and hand off. We design Challenges based on stakeholder needs and societal challenges, and leverage GIS work from Challenges to inform policy, regulation and direction. Specifically, each Challenge includes a dedicated strategy for knowledge mobilization, co-creation and support for [GE<sup>3</sup>LS research](#) (genomics and its ethical, environmental, economic, legal and social aspects) that investigates aspects of responsible and equitable innovation including, for example, key factors that may facilitate or hinder the effective translation of research and the uptake of genomic-based applications. Implementation strategies will support the development of innovative processes, services and improvements to existing products and technologies. Each Challenge will have a dedicated GIS strategy to identify the policy and regulatory barriers along with opportunities for societal uptake of results and technologies. The knowledge mobilization and implementation coordinating hubs that are part of each Challenge will be responsible for these strategies.
- **Further leverage, action and amplify existing GE<sup>3</sup>LS research and investments.** There has been significant investment in both stand-alone and integrated GE<sup>3</sup>LS research with many products, tools and new pieces of knowledge developed. We will build on this work through further investments, policy recommendations and other knowledge translation to support uptake and implementation of genomics.
- **Amplify and extend the impact of the Centres' leadership in GIS.** The Centres excel in knowledge mobilization to build public awareness and genomics literacy in their provinces and regions. Several are active in mobilizing genomics knowledge via high school and citizen science partnerships, high-profile public genomics conferences and multimedia digital efforts to reach new and younger audiences. We are exploring how we can best support the Centres in scaling up in their ecosystem and promoting their efforts to national audiences.
- **Allocate funds and resources to existing programs, new Challenges and Strategic Initiatives across all our work.** These allocations are included in Section 3.0 under "Looking ahead", by area of work, as relevant.

## 3.0 Results 2022-23

The global pandemic continued to create challenges for all of society in 2022-23, including for the support of genomics across Canada. Genome Canada built on strategies developed over two years of COVID-19 to lay foundations for ongoing and future project work. We continued to monitor the ongoing impacts on research teams and the larger research ecosystem. We also broadened our sights to a post-pandemic reality in which we continued to advance work across all our three priority Challenge areas.

### Short- and medium-term outputs and outcomes from 2022-23

In 2022-23, we achieved a broad and substantial range of short- and medium-term outputs and outcomes. For each program, we also indicate anticipated 2023-24 investment, as applicable.

#### Programmatic

- **CanCOGeN.** CanCOGeN continues to provide national coordination for viral and host genomic sequencing during the ongoing COVID-19 pandemic in Canada and has been presented in several international forums. [VirusSeq](#), the effort to coordinate and fund expanded genome sequencing and support the sharing of the data within an open, ethical framework, has generated over 430,000 sequences. It has built up sequencing capacity nationally, allowing an increase in sequencing from 5% to ~15% of total positive cases of SARS-CoV-2 in Canada. Provincial and federal public health officials have used the data generated to inform public health and policy decisions. The [HostSeq](#) initiative, which sequences the genomes of patients diagnosed with COVID-19, has now sequenced more than 10,000 human samples, and clinical data has been linked with approximately 90% of these sequences.

Both the VirusSeq & HostSeq projects wrap up in March 2023 following three years of funding. VirusSeq governance has evolved into a monthly genomics alliance that convenes public health leaders across Canada to discuss surveillance and pandemic preparedness. This national partnership with the Public Health Agency of Canada is called the Canadian Public Health Alliance for Genomics Epidemiology and Surveillance (CHARGES). HostSeq governance is now led by the HostSeq Transition Oversight Committee which has strong and diverse representation from international experts in genomics. We invested \$4.5 million (\$0.1 million in VirusSeq and \$4.4 million in HostSeq) in 2022-23.

***Looking ahead.** We have successfully dispersed our full envelope of dedicated funding for CanCOGeN and will continue to harness the vast expertise and capacity, extensive knowledge and valuable partnerships developed over the last 2.5 years to strengthen Canada's health genomics ecosystem.*

- **COVID-19 impact relief funding.** To facilitate our transition to a Challenge approach, we must demonstrate that existing research commitments are valued and prioritized. COVID-19 has had a significant impact on many projects. The relief



funding that Genome Canada provided in 2021-22 has helped ensure the delivery of project outputs and the meeting of objectives, the continuity of research teams and infrastructure, and the maintenance of positive relationships with the researcher community and partners. Based on a fair and equitable distribution across Centres and projects, we invested \$8.4 million in 2022-23.

**Looking ahead.** *We have fully disbursed COVID-19 relief funding and there will be no additional investment in 2023-24.*

- **Launch of the Climate-Smart Agriculture & Food Systems Challenge.** We launched this \$30 million initiative in May 2022. It will invest in a portfolio of interdisciplinary genomics research projects aimed at strengthening the environmental sustainability and performance of Canadian agriculture and food systems by reducing carbon emissions.
  - **Interdisciplinary Challenge Teams (ICT).** These teams represent the largest, key component of the initiative with \$24 million available for funding. ICTs are integrated teams of researchers from different disciplines and users who work together to address specific questions, achieve relevant deliverables and, ultimately, reduce the carbon footprint and greenhouse gas emissions of Canada's agriculture and food systems. As part of the portfolio, ICTs will work towards broader national impacts that manifest value beyond each individual project.
  - **Cross-cutting Coordination Hubs.** To foster further impact and cohesion, the ICTs will work alongside two Coordination Hubs that we launched in August 2022. These Hubs will provide administrative, technical and coordination leadership to the project portfolio with two distinct focuses. The Knowledge Mobilization and Implementation Coordination Hub will invest \$2 million in a single, Pan-Canadian team that will develop and implement a portfolio-level knowledge mobilization and implementation plan. The Data Coordination and Collaboration Hub will invest \$4 million in a single, Pan-Canadian team that will develop and implement a data plan.

**Looking ahead.** *In fall 2023-24, the full ICT teams and Hubs will convene for the first time to kick off their collaboration, including in data and knowledge mobilization work. The full \$30 million investment, plus another \$30 million in co-funding, will be fully committed and disbursed over several years.*

- **Support for Pan-Canadian Human Genome Library with CIHR.** Genome Canada partnered with CIHR, CGEn and the Digital Research Alliance of Canada in 2022-23 to launch a \$15 million (over five years) funding opportunity to support the development of a Pan-Canadian Human Genome Library. The development of this national asset will enable all human sequencing efforts to be united for the benefit of Canadians while positioning Canada as a key player in international genomic research endeavours.

*Looking ahead. In 2023-24 we will work with partners to support the second of five years of this \$15 million investment.*

- **Launch of the “Shifting Dynamics of Privilege and Marginalization” Knowledge Synthesis Grant with SSHRC.** Genome Canada and SSHRC launched this joint funding opportunity in September 2022. Investing in inclusive genomics research and innovation shaped by diverse perspectives and communities is vital to addressing current and historic inequities—and to ensuring the benefits of genomics are shared by all. These projects will help inform and shape our Challenge-driven initiatives and support our strategic priorities to amplify IDEA, acknowledge systemic barriers, and advance Indigenous truth, reconciliation and engagement.

*Looking ahead. In 2023-24, this opportunity will support up to seven projects focused on genomics with up to \$30,000 each.*

- **Continued investment in the 2020 LSARP Competition – Genomic Solutions for Natural Resources and the Environment.** This \$58.6 million competition, including co-funding, was launched in January 2020 in partnership with NRCan. It supports eight projects that use genomic approaches to address challenges and opportunities in Canada’s natural resources and environmental sectors such as the impact of climate change on Canada's biodiversity and conservation of endangered species such as the North Atlantic right whale. We invested \$4.6 million in 2022-23.

*Looking ahead. In 2023-24, we will invest \$10.5 million.*

- **Continued investment in the 2018 LSARP Competition – Genomic Solutions for Agriculture, Agri-food, Fisheries and Aquaculture.** This \$78.4 million competition, including co-funding, was launched in January 2018 in partnership with Agriculture and Agri-food Canada. It supports eight projects that demonstrate how genomics research can be translated into solutions advancing the sustainability, productive capacity and competitive position of the Canadian agriculture/agri-food and fisheries/aquaculture sectors. Projects include improving the capability and agility of a lentil breeding program and monitoring DNA from water samples to assess the health of freshwater fish. We invested \$4.1 million in 2022-23.

*Looking ahead. In 2023-24, we will invest \$10.4 million.*

- **Continued investment in the 2017 LSARP Competition – Genomics and Precision Health.** We launched this \$163.9 million competition, including co-funding, in January 2017 in partnership with CIHR. It supports 15 projects that demonstrate how genomics-based research can contribute to a more evidence-based approach to health. These projects are expected to improve health outcomes and/or enhance the cost-effectiveness of the healthcare system. A broad range of projects were funded, including several on diagnosis and treatment for cancers, reducing healthcare disparities and improving diagnostic success for children with genetic diseases from Indigenous populations, diagnosis of rare diseases, and several



chronic illnesses, including cystic fibrosis, inflammatory bowel disease and childhood arthritis. We invested \$7.3 million in 2022-23.

**Looking ahead.** *In 2023-24, we will invest \$4.7 million.*

- **Continued investment in the 2015 LSARP Competition – Natural Resources and the Environment.** Genome Canada and co-funding partners are investing a total of \$112.8 million in 13 projects. The scope of this competition includes genomics research in energy, mining, forestry, water stewardship, wildlife management and conservation. It also includes genomics research in bioproducts that will provide tools to help conserve natural resources and protect the environment. We invested \$1.5 million in 2022-23.

**Looking ahead.** *In 2023-24, we will invest \$0.9 million.*

- **Support for genomics applications in Canada’s economy through GAPP.** Throughout 2022-23, Genome Canada continued to invest in GAPP, disbursing approximately \$17.9 million during the fiscal year. With over 100 projects funded to date, and now in Round 24, GAPP is intended to stimulate investment from private and public partners in Canadian genomics technologies. GAPP has continuously evolved since inception in 2013 and, in this spirit of continuous improvement, we are working with the Centres to identify possible enhancements to ensure the program continues to support our vision while meeting their needs and those of receptors and other stakeholders.

**Looking ahead.** *In 2023-24, we will invest at least \$32.6 million in ongoing and new GAPP projects to capitalize on translational and economic development opportunities across our mandate.*

- **Continued partnership with Mitacs through GAPP to provide training opportunities in the private sector.** This partnership leverages Mitacs programs to provide placements and funding for graduate students and post-doctoral fellows to work on GAPP projects within industry partners’ operations. It prepares Canada’s next generation of innovators to advance the field of genomics by allowing them to apply their knowledge and skills in a real-world setting. Companies, meanwhile, benefit from the high-quality research expertise. During 2022-23, this partnership supported 15 Mitacs Accelerate internships through GAPP projects.

**Looking ahead.** *We are now scaling up genomics internships in partnership with Mitacs, which will now provide 500 internships over the next five years through GAPP, Challenges and other programs.*

- **Support for Summer internship for Indigenous peoples in Genomics Canada (SING Canada).** Genome Canada further supported our longstanding partnership with SING Canada by investing \$240,000 over three years through a strategic funding agreement. SING will transform relationships between Indigenous



communities and genome researchers by building Indigenous technical capacity to do genomics, training aspiring scientists and Indigenous community members, and engaging non-Indigenous genome researchers to enhance their understanding of Indigenous knowledge, governance, and worldviews. We invested \$84,500 in 2022-23.

**Looking ahead.** *In each of the next two fiscal years, we will invest \$77,800.*

- **Continued investment in the Regional Priorities Partnership Program.** This \$20.4 million initiative (including co-funding) supports the Centres in developing initiatives that advance genomics research and translation capacity in areas of strategic priority for their regions. Twenty-one projects have been approved thus far across key sectors including agriculture, fisheries and aquaculture, human health and data science. We invested \$0.5 million in 2022-23.

**Looking ahead.** *In 2023-24, we will provide \$0.4 million in continued investment.*

- **Continued investment in the Genomics Technology Platforms.** We are supporting 10 Technology Platforms with a total of approximately \$133 million, including co-funding, over five years (2017-23). The platforms provide researchers with access to the latest high throughput genomics technologies in areas such as DNA sequencing, proteomics and metabolomics. The platforms also provide advice on new method and protocol development, data analysis and bioinformatics. The program leverages genomics infrastructure developed over the last 20 years by Genome Canada and [collaboration with CFI](#) and the Major Science Initiative. We invested \$6.2 million in 2022-23.

**Looking ahead.** *In 2023-34, we will invest \$3.9 million.*

- **Continued investment in the 2017 Bioinformatics and Computational Biology Competitions.** This \$24 million competition launched in December 2017. It supports the development of next-generation tools and methodologies under two streams: those mainly impacting the human health sector, and those mainly impacting one or more of the other sectors that we focus on. The 25 projects, which are vital for creating new and innovative ways of engaging with large-scale complex genomics data sets, received a \$1.1 million investment in 2022-23.

**Looking ahead.** *In 2023-24, we will invest \$0.7 million.*

- **Investment in the Canadian Bioinformatics Workshop (CBW).** The CBW has been a strong Canadian brand for 20 years. We recently supported it through one of our bioinformatics platforms, however the program is winding down. By investing in the CBW, Genome Canada can support training in bioinformatics and computational biology, which will align with the Strategic Science Fund Key Performance Indicators. Specifically, our support is helping restart in-person workshops after the COVID-19 pandemic and refresh the CBW brand. Moreover, the CBW team is developing a strategic plan that aligns with our own objectives, supporting Challenges, Strategic Initiatives and Indigenous capacity, and addressing skill gaps that are a priority for the Canadian Genomics Enterprise.

**Looking ahead.** We will invest up to \$250,000 over the next two years.

- **Continued investment in the Global Alliance for Genomics and Health (GA4GH).** Genome Canada has been a member and supporter of the GA4GH since 2014. We provided approximately \$25,000 in 2022-23 to support convening activities to advance the research efforts of the alliance and to support the secretariat staying in Canada. Plans are in place to launch a GA4GH Collaboration and Funding Opportunity in the last quarter of the 2022-23 fiscal year to support GA4GH activities in areas of strategic importance to Genome Canada such as convening international stakeholders around data sharing and implementing genomic medicine within Canada, informing our All for One work.

**Looking ahead.** We will invest \$820,000 over the next two years.

- **Continued support for the Structural Genomics Consortium (SGC).** Established in 2004, the SGC is a not-for-profit public-private partnership that supports and accelerates the discovery of new medicines through open access research. It has created an [open collaborative network of scientists](#) in hundreds of universities around the world and in nine global pharmaceutical companies. We reconfirmed our investment in the SGC in March 2020, approving funding for Phase V. This phase will employ innovative strategies including artificial intelligence (AI) to develop tools to better understand proteins involved in many cancers and other debilitating and rare diseases. It has a total project budget of \$23.5 million and a maximum of \$5 million from Genome Canada over two years. We invested \$0.4 million in 2022-23.

**Looking ahead.** In 2023-24, we will invest \$0.3 million to support Phase V.

- **Continued support for the Global Biodata Coalition (GBC).** Genome Canada represents Canada in this global forum for research funders to better coordinate and share approaches for the efficient management and growth of biodata resources worldwide. It aims to stabilize and ensure sustainable financial support for the global biodata infrastructure, and to identify, for prioritized long-term support, a set of Global Core Data Resources crucial for sustaining this infrastructure. As the Canadian member of the GBC Board of Funders, represented by Dr. Rob Annan, we bring a broad Canadian perspective to discussions by consulting other Canadian parties interested in GBC work and informing them of GBC activities. We invested \$30,000 in 2022-23.

**Looking ahead.** In 2023-24 we will invest \$30,000 to continue the support of the coalition.

- **Continued partnership with SSHRC on Societal Implications of Genomics.** This \$2 million initiative jointly supports social sciences and humanities research and related activities that will enrich the understanding of the societal implications of genomic research. SSHRC is the lead on peer review as applicants apply through its regular programs. A total of 17 projects have now been approved for funding through 2022-23 and are providing insight into topics that may inform future

Challenges such as consumer attitudes towards genetically modified food and enabling the growth of Indigenous-led and cross-cultural community-based wildlife monitoring programs that lead to a more resilient Arctic.

**Looking ahead.** *We have extended our partnership with SSHRC for at least two more years, an additional investment of \$500,000 focusing on launching two Knowledge Synthesis Grants (KSG) and an Imagining Canada's Future Ideas Lab. This joint work will help inform and shape our Challenge-driven initiatives, move forward our inclusion, diversity, equity and accessibility strategy, and engage social science and humanities leaders and experts in genomics. Specifically, our work together will focus on:*

- *Shifting Dynamics of Privilege and Marginalization (KSG in Fall 2022)*
  - *Evolving Narratives of Histories and Cultures (KSG in 2023)*
  - *Global Health and Wellness in the 21st Century (Ideas Lab in 2023)*
- **Continued funding of the Genomics in Society Interdisciplinary Research Teams program.** This \$5.8 million knowledge translation program, launched in February 2019, brings researchers from different disciplines together to (i) investigate factors affecting the advancement, adoption, evaluation and governance of genomics research; and (ii) address issues at the intersection of genomics and society that will ultimately contribute to Canada's leadership and social and/or economic benefits in various sectors. It is designed to support and enhance GE<sup>3</sup>LS research that addresses important and overarching challenges that affect the adoption and uptake of the outcomes from genomics research and/or accelerate the synthesis and dissemination of research pertinent to users, including policymakers, within a sector. We invested \$0.7 million in 2022-23.

**Looking ahead.** *In 2023-24, we will invest \$0.5 million in continued support for our three GIS Interdisciplinary Research Teams.*

## Strategic outreach, policy engagement and partnerships

### Policy and ecosystem leadership

- Building on our fall 2021 [Dialogue on the Future of Genomics in Canada](#) series, we actively supported federal consultations for the Pan-Canadian Genomics Strategy (PCGS). We worked closely with ISED and the NRC—the departments leading policy and strategy development for PCGS—to mobilize pan-Canadian community engagement in the June 2022 government consultations, resulting in over 300 online submissions. Genome Canada was represented at each of the six thematic roundtables and we prepared a written submission, as did the Genome Centres. Our core message was that “mobilizing a strong genomics future for Canada requires a national strategy and action plan and funding at scale; national ecosystem leadership and coordination; a Challenge-driven research focus and innovative private-public partnerships at pace and scale; strategic national capabilities in talent, data and infrastructure; and an end-user, equity and reconciliation-based focus.”



- Genome Canada supported Parliamentarians in advancing science, technology and innovation policy and legislation in Canada. As Canada’s genomics ecosystem leader, we worked with MPs to build genomics awareness and support effective policy and legislative development and Committee studies. We were consulted as expert witnesses on numerous occasions: for example, in 2021 on COVID-19 and genomics with the House of Commons Finance and Health Committees; and in 2022 to inform the studies of the House of Commons Standing Committee on Science and Research on [the successes, challenges and opportunities for science in Canada](#) and [talent and R&I](#). The Committee reports picked up our recommendations. Dr. Rob Annan, our President & CEO, was invited to meet with the Advisory Council on Research Support in October 2022.
- We commissioned a national [Abacus Data survey](#) and [related podcast with Dr. Annan](#) in spring 2022 to better understand misinformation and mistrust in science across Canada, and to help us drive knowledge mobilization, uptake and implementation of genomics. We held a series of briefings with government and ecosystem partners on the results. We plan to invest annually in national public opinion research to benchmark and track public perceptions of genomics over time, coordinate with federal science information initiatives, and share findings at [national events](#) and [policy tables](#), to help build a community of practice in knowledge mobilization.
- We collaborated broadly with major federally funded genomics initiatives, leveraging our unique national mandate and federated network, Challenge-driven approach and cross-sectoral expertise to add value and address key gaps for greater impact in the seven strategic sectors of the federal government. For example, in spring 2022, we worked with the Genomics Research and Development Initiative (GRDI) and the NRC, including hosting a joint roundtable, to align our new [Challenge programming](#) to support and complement GRDI’s intramural genomics and agriculture climate adaptation initiatives.
- Furthermore, we collaborated with CIHR to advance a national approach to large-scale inclusive datasets that can enable precision health to improve health outcomes and health systems and drive life sciences innovation in Canada. In September 2022 we released a joint report, [Enhancing Canada’s Population Cohort Environment](#), with 11 recommendations to strengthen Canada’s health data and research outcomes and increase benefits for Canadians. Putting the report’s recommendations into action will take coordinated pan-Canadian effort and an ecosystem approach from Canada’s genomics and health research funders and many other partners.

### **Stakeholder outreach and public engagement**

In 2022-23 we focused heavily on supporting the spring launch of our Climate-Smart Agriculture and Food Challenge and other Strategic Initiatives. We invested in partnerships that support our Challenges, spearhead policy leadership in Canada and internationally, and support next-generation scientists and science communications capacity. We applied cross-





cutting criteria for all commitments to ensure that partnerships support our IDEA and Indigenous truth, reconciliation and engagement commitments.

- **Global Genomic Medicine Collaborative (G2MC).** As part of our international outreach and engagement, our Chief Scientific Officer, Dr. Catalina Lopez-Correa, holds a Co-Chair position at G2MC and is an active participant in its international conferences that target an engaged audience of leaders and stakeholders in genomic medicine from across the world. This ideal outreach tool reinforces our reputation as a global leader in genomics. We also support and showcase the talent of young investigators through regular sponsorship of the Young Investigator Competition.
- **Personalized Medicine Coalition (PMC).** We are an active member of PMC, which represents innovators, scientists, patients, providers and payers. PMC promotes the understanding and adoption of personalized medicine concepts, services and products to benefit patients and health systems. Membership enables us to help shape PMC's strategic agenda in education and advocacy work. In November 2022, Pari Johnston, Vice-President, Policy and Public Affairs, was an international panelist at PMC's annual conference on [Personalized Medicine and the Patient](#) in Boston, representing the Canadian perspective on [Diversity, Equity and Inclusion in Personalized Medicine](#) and improving patient care for diverse populations.
- **BIOTECanada.** We participated in two major events led by BIOTECanada this fiscal year. In June 2022 we were part of the Team Canada pavilion on the international tradeshow floor at BIO International in San Diego, attending sessions, networking, gathering new opportunities and key trends in the investment and technology development space in global biotechnology and biomanufacturing industries. In September 2022, at Bionation 2022 in Ottawa, Dr. Annan introduced keynote Dr. Timothy Caulfield (University of Alberta). Dr. Bettina Hamelin, President and CEO of Ontario Genomics, served as a panelist on an industry panel examining governmental biomanufacturing initiative. With the Honourable Jean-Yves Duclos, Minister of Health, we also launched the [Genome Canada-adMare BioInnovations joint initiative](#) and partnership to drive commercialization of genomics solutions in healthcare.
- **Public Policy Forum (PPF) Growth Summit and Awards Night.** Genome Canada was lead sponsor of PPF's first major public and economic policy national event since the lifting of COVID-19 restrictions. Dr. Annan participated in a PPF Life Sciences Panel on *Science Helped Save Us: What's Next*, alongside James Brodie of Johnson & Johnson MedTech and Ivan Semeniuk of *The Globe and Mail*. We hosted a table of Board, Centre and partners at the Awards Night, which gathered over 1,000 people at this high-profile public policy event in April 2022 in Toronto.
- **Canadian Science Policy Conference.** Genome Canada and the Centres were strategic partners at this [national science policy event](#) (Nov. 2-18, 2022). Our first of three panels was on *Trust in Science: The Science in Trust*, in collaboration with SSHRC and CFI and building on our work last year on public trust in genomics.

Our two other panels supported our Challenge work: one on *Climate and Innovation – the role of genomics and agri-food in addressing climate change* and the other on *Building the circular bioeconomy through innovative policy design and implementation*. We were featured in an executive interview about our knowledge mobilization work in climate-smart genomics and supported in-person attendance of Centre representatives from across the Enterprise.

- **Let's Talk Science.** We partnered with Let's Talk Science and other Science, Technology & Innovation organizations to deliver six online symposiums (four in English, two in French) that celebrated discovery and innovation and invited high school students (Grades 9-12) and educators across the country to engage, explore and be inspired by world-class STEM researchers and specialists. Reputable scientists and experts were invited to share their knowledge and engage students in exploring the impact of their work and pathway to their current careers. The events were designed to be provocative, raise awareness and inspire interest and action, while building STEM literacy and inspiring youth to consider STEM careers and education. More than 4,000 young people have participated in these sessions since the partnership's inception. This year's topics included space exploration, misinformation, future of medicine and climate-smart agriculture.
- **The Conversation Canada (TCC).** We continued our partnership with TCC to advance the common goal of building public awareness of genomics science, technology and its broad benefits across sectors as well as the societal implications of genomics. More broadly, we both focus on supporting innovative digital media and a healthy journalism landscape in Canada; mobilizing knowledge; creating opportunities for early-career and Indigenous researchers and those from equity-deserving groups to showcase their research; and enabling evidence-informed policymaking. In early 2023, we will offer a targeted set of TCC-led science knowledge mobilization communications training webinars on writing for mainstream media outlets for Genome Canada-funded early-career and established researchers funded in the 2021-22 fiscal year.
- **Black Excellence in Science, Technology, Engineering, Mathematics and Medicine/Health (BE-STEMM 2023).** We are partnering on the [second-ever BE-STEMM event](#) on February 1-4, 2023, which will support the research and careers of Black Canadians across a range of sectors. The focus is on removing barriers and boosting retention of these scholars. This bilingual, accessible event will feature both established and early-career Black keynotes and showcase the work of scientists, educators, applied professionals, undergraduates and high school students. Programming will include a Career Fair, a Leadership Summit and other initiatives to support Black Canadians in STEMM.
- **Mission eDNA.** We continue to partner with Génome Québec and the Fonds de recherche du Québec to [support a pilot underway](#) to adapt an established high school educational initiative for two Indigenous communities with up to 10 high schools. In 2022-23, the pilot ran in seven classes in two schools. After receiving two

support resolutions from Eastmain and Waskaganish Chief and Council, G enome Qu ebec is working with Eeyou Marine Region Wildlife Board to adapt the activity and keep the communities on board. There is potential, in the long term, to expand the project to include Inuit, Cree and Dene communities, among others, across Quebec and to eventually replicate it in other provinces. Well suited to Indigenous culture and connection to natural resources, this project aligns with our commitment to expanding our work on Indigenous truth, reconciliation and engagement.

## Strategic communications and storytelling

**Evolving our voice and digital-first communications approach.** The evolution of our strategic communications and storytelling approach continued as we leaned into a fresher voice and visual brand for Genome Canada in external communications across all platforms. Our communications approach continued to be digital-first with a focus on impact storytelling that was accessible to key audiences and easily shareable. Examples of this storytelling include [new impact narratives](#) on our investments.

The launch of [Genome Canada’s redesigned website](#) this year provided an exciting new platform to showcase our impact and explain how we work to diverse audiences. Our new website was designed to be more accessible, people- and impact-focused, navigable, visually engaging and easier for staff to manage and update. We also continued last year’s shift to more blog-style funding announcements and explainers with compelling imagery and graphics that could be repurposed across social media, virtual presentations and external publications.

As well, we continued to explore ways to leverage new voices and champions on social media. This included hosting a [Twitter Space](#) for diverse members of CanCOGeN to discuss the impact of this Genome Canada-led initiative and key learnings to inform the future of health and genomics in Canada.

**Challenge storytelling.** With the launch of our new Climate-Smart Agriculture and Food Systems Challenge initiative in May 2022, the Communications team kicked into high gear, launching the initiative publicly via web and social media. We also levelled up our support for the Genome Centres and other partners promoting our funding opportunities—specifically our new funding for Climate-Smart Agriculture and Food Systems—through regularly updated toolkits with key messaging and digital-first communications tools, as well as [accessible explainers](#) to support in promotion. This enabled better messaging alignment across the Canadian Genomics Enterprise and collaboration as the Centres contributed to toolkit development.

We also advanced storytelling on existing Challenge-driven initiatives, sharing impact stories from CanCOGeN (COVID-19) and All for One (precision health) that explored the importance of, and Canada’s vast potential for, life-saving genomics health research innovation and collaboration. We made complex research, data coordination issues and ecosystem collaboration efforts more understandable and relevant to our diverse target audiences—specifically, government, the public and the broader research and innovation

ecosystem. Examples of this work include the continuation of our [CanCOGeN impact blog series](#) and our [blog series featuring the families benefitting from precision health investments](#).

**Communications supporting inclusive excellence.** We continued to refine our communications approach to support our commitment to IDEA and Indigenous truth, reconciliation and engagement.

- Our new website was designed to be fully accessible. Documents and graphics on our site, in our newsletters and on our social media accounts are accessible and aligned with best practices for Web Content Accessibility Guidelines 2.1 and *Accessibility for Ontarians with Disabilities Act* compliance. Our virtual meetings and videos are also closed captioned.
- We placed new imagery reflecting the diversity of our research and innovation community at the heart of our website redesign and refreshed social media brand. Similarly, we designed our public campaigns and content with diverse and respectful representation as a priority.
- This year, our digital content strategy highlighted our work to advance IDEA and Indigenous truth, reconciliation and engagement in genomics—such as the [public launch of our partnership with SING Canada](#) to drive Indigenous leadership and engagement in genomics.

**Strategic media relations and partnerships.** We continued to leverage media relations and partnerships to tell our impact story, support evidence-based science journalism and engage a broader audience in the conversation on Canada’s genomics future.

In collaboration with [The Future Economy](#), we mobilized champions with expertise related to our Challenge-driven initiatives through a multimedia series (to be released in the last quarter of this fiscal year) featuring:

- Videos and a blog with Genome Canada-funded researchers showcasing examples of innovative genomics research and solutions integrating Indigenous knowledge and ways of knowing and exploring the value of this approach to drive inclusive impact.
- A recorded panel with [Genome Canada-funded researchers on the power and promise of genomics](#) to provide biological innovation solutions to implement agriculture and food production systems that are climate resilient, economically viable and environmentally sustainable. This panel is tied to our new Climate-Smart Agriculture and Food Systems Challenge, exploring how genomics can help position Canada as a world leader in agriculture sustainability and address the climate crisis.

Through a partnership with Let’s Talk Science and *The Globe and Mail*, we shared a series of genomics impact stories on [lentils and smart agriculture](#), [rare disease and precision medicine](#), and [eDNA and combining Indigenous knowledge with genomics](#).

## Organizational highlights

**Operational excellence.** We continue to build, strengthen and evolve our operations, placing strategy and planning as foundational elements of organizational excellence. Our Challenge-driven approach to programmatic investments has begun transforming our impact and ability to link the genomics ecosystem and building metrics to capture and report on our progress. [Genome Canada's Playbook](#), which outlines our corporate values, coupled with the launch of our IDEA strategy and roadmap, anchors our work and is embedded in everything we do. We have developed and launched an integrated planning framework that translates our strategies into action. This framework enables us to purposefully align resources and investments to deliver on corporate priorities.

**IDEA and Indigenous truth, reconciliation and engagement.** We are committed to intentionally and deliberately embedding IDEA policies and practices across our operations, workforce, programs, policies and governance structures. Over the last year, we have taken several proactive measures to step up our commitment to IDEA. In summer 2022, we welcomed Dr. Wesley Oakes as our new Director, Equity and Indigenous Engagement. Dr. Oakes provides strategic leadership for all our activities intended to further integrate and advance the organization's commitment to IDEA as well as Indigenous truth, reconciliation and engagement. He is also Chair of our Enterprise-wide inclusion, diversity, equity and accessibility (IDEA) working group, which involves senior staff from the six Genome Centres. One of the five values in our Playbook is to be "intentionally inclusive". This sets our expectations for staff to integrate Indigenous truth, reconciliation and engagement. Moving forward, we will continue to work on addressing systemic barriers in partnership with Indigenous researchers, leaders and organizations to co-create a distinctions-based strategy to elevate Indigenous genomics leadership in Canada.

## Remaining challenges from 2022-23

An ongoing operating challenge for Genome Canada has been the current model of short-term funding agreements with the Government of Canada. This presents issues with strategic investment planning and additional challenges in the ability of Genome Canada and the six Centres to secure co-funding through medium- to long-term partnerships.

We welcomed the opportunity to participate in the full proposal stage of the Strategic Science Fund (SSF) competition in September 2022 to secure longer-term federal funding that would position us as a more stable and credible partner with industry and the provinces and territories. If successful, we would have predictable, stable and long-term funding that would mitigate our past operating challenges and enable us to deliver on a national action plan and strategically harness Canada's genomics ecosystem to address the major economic, environmental, health and social challenges of our time. Our SSF proposal is intended to renew our mandate for genomics ecosystem leadership.

Over the last year, the COVID-19 pandemic has continued to present unique challenges for the research sector. While the situation is now improving, we welcomed the COVID-19 relief funding in our bridge funding for 2022-24 to support affected projects, allowing them to deliver on project outputs; continue research infrastructure; and maintain partnerships with provinces, industry and other not-for-profit funders.

## 4.0 Financial management

The federal government, through ISED, has invested \$1.8 billion in funding to Genome Canada since 2000-01. All funding is provided through funding agreements between Genome Canada and ISED. Genome Canada and the Genome Centres leverage these investments by securing co-funding from others, including the public, not-for-profit and private sectors. This approach strengthens the overall impact and investment in the genomics research ecosystem.

### Investment and management of funds

Genome Canada utilized rigorous financial management and oversight practices to enable maximum investment while mitigating potential risks. The Audit and Investment Committee supports Genome Canada's Board of Directors in fulfilling its fiduciary responsibilities with respect to the management of funds. The Committee meets quarterly and reports to the Board on the outcome of its deliberations.

The Committee is responsible for:

- overseeing the investment and management of funds received from the Government of Canada as per a Board-approved investment policy that outlines guidelines, standards and procedures for the prudent investment and management of funds; and
- overseeing Genome Canada's policies, processes and activities in the areas of accounting and internal controls, risk management, cybersecurity, auditing and financial reporting.

The Board's Programs Committee brings further oversight to the management of funds by ensuring research funding and activities are aligned with Genome Canada's strategic priorities and review policies. The Committee provides advice to the Board of Directors on research programs and projects, research partnerships and collaborations, competitions and program evaluation.

The alignment of investments with strategic objectives is achieved through a well defined and established governance and accountability structure.

### Source and use of funds

Genome Canada currently manages funds from the following Contribution Agreements (see Table 1).

**TABLE 1: GENOME CANADA FUNDING AGREEMENTS WITH INNOVATION, SCIENCE AND ECONOMIC DEVELOPMENT CANADA**

Federal budget	Competitions and projects funded
<b>Budget 2008</b> (\$140 million)	Competition in applied genomics research in bioproducts and crops Two research projects through the Cancer Stem Cell Consortium and the International Barcode of Life project Support for the Science and Technology Innovation Centres The operations of six regional Genome Centres and Genome Canada through to 2012-13
<b>Budget 2010</b> (\$75 million)	Competition in forestry and the environment Multi-sector competition Competition for operations support for the Genomics Innovation Network
<b>Budget 2011</b> (\$65 million)	Competition in applied genomics research in personalized health Funding of Phase III of the Structural Genomics Consortium (SGC) and continued funding for the International Barcode of Life project Funding for the Public Population Project in Genomics Competition in bioinformatics and computational biology Contribution to the operations of six regional Genome Centres and Genome Canada for 2013-14
<b>Budget 2012</b> (\$60 million)	Funding for the Genomic Applications Partnership Program Funding for renewal of the Genomics Innovation Network for two years Funding of the SGC and the International Barcode of Life project
<b>Budget 2013</b> (\$165 million)	Two competitions in large-scale applied genomics research Funding for Genomics Innovation Network operations in 2015-16 and 2016-17, as well as related technology development Funding for disruptive innovation in genomics and in bioinformatics and computational biology Funding for national and international partnerships, including the SGC and the International Barcode of Life project Contribution to the operations of six regional Genome Centres and Genome Canada through to 2016-17
<b>Budget 2016</b> (\$237 million)	Two competitions in large-scale applied genomics research Support for genomics Technology Platforms and for bioinformatics and computational biology competitions Funding for the Genomic Applications Partnership Program Funding for national and international partnerships and strategic initiatives Contribution to the operations of six regional Genome Centres and Genome Canada through to 2019-20
<b>Budget 2019</b> (\$100 million)	One competition in large-scale applied genomics research Funding for Technology Platforms and research projects in bioinformatics and computational biology, technology development and disruptive technology Support for translational research Operating costs of Genome Canada and contribution to the operations of six regional Genome Centres through 2021-22
<b>Canadian COVID Genomics Network (CanCOGeN)</b> (\$38.4 million)	The CanCOGeN initiative to coordinate and fund national genome sequencing efforts and share the resultant data, nationally and internationally, in support of large-scale research to combat COVID-19 Creation of a coordinated national genomics-related network to build capacity to address future pandemic outbreaks
<b>Budget 2021</b> (\$136.7 million)	Challenge-driven programming to kick-start the new Pan-Canadian Genomics Strategy and complement the government's existing genomics research and innovation programming





## Cash management

Genome Canada disburses funds on a quarterly basis through the six regional Genome Centres (for approved research projects) and the Technology Platforms. On a quarterly basis, each Genome Centre is required to review the expenditures to date. Each Centre is also required to estimate cash requirements for Centre operations and for each project and technology platform that it manages. It then submits a request for funds to Genome Canada, indicating the cash needs for the subsequent quarter.

The Genome Centres assess the project/technology platform needs against the approved budget, actual expenditures, scientific progress to date and co-funding received from other sources. Genome Canada then conducts a thorough review of the request for funds before releasing funds.

## Receipts and disbursements

Table 2 provides an estimate of the receipts and disbursements for the funding agreements.

**TABLE 2: SUMMARY OF RECEIPTS AND DISBURSEMENTS**

Details (in millions of dollars)	Actual 2000-1	Forecast 2022-23	Forecast 2023-24	Forecast Other	Total	Estimated co-funding	Genome Canada and co-funding	%
<b>RECEIPTS</b>								
Government of Canada								
Previous budgets	1,205.0	0.0	0.0	0.0	1,205.0		1,205.0	27.7%
Budget 2016	212.2	20.0	5.0	0.0	237.2		237.2	5.5%
Budget 2019	49.5	23.0	19.0	9.0	100.5		100.5	2.3%
Canadian COVID-19 Genomics Network (CanCOGeN)	39.4	0.0	0.0	0.0	39.4		39.4	0.9%
Budget 2021	0.0	36.3	55.4	45.0	136.7		136.7	3.1%
Investment income	94.2	0.1	0.0	0.0	94.3		94.3	2.2%
Co-funding	0.0	0.0	0.0	0.0	0.0	2,532.7	2,532.7	58.3%
	<b>1,600.3</b>	<b>79.4</b>	<b>79.4</b>	<b>54.0</b>	<b>1,813.1</b>	<b>2,532.7</b>	<b>4,345.8</b>	<b>100.00%</b>
<b>DISBURSEMENTS</b>								
<b>Research projects &amp; Genome Centre funding</b>								
Projects and programs completed in previous years	869.0	0.0	0.0	0.0	869.0	1,091.0	1,960.0	45.1%
2012 LSARP*: Genomics and Personalized Health	47.9	0.0	0.0	0.0	47.9	103.2	151.1	3.5%
2014 LSARP*: Genomics and Feeding the Future	32.6	0.0	0.0	0.0	32.6	61.8	94.4	2.2%
2015 LSARP*: Natural Resources and the Environment	32.0	1.5	0.9	0.0	34.4	78.4	112.8	2.6%
2017 LSARP*: Genomics and Precision Health	32.8	7.3	4.7	0.0	44.8	119.1	163.9	3.8%
2018 LSARP*: Genomics and Agriculture, Agri- Food, Fisheries and Aquaculture	16.2	4.1	10.4	0.0	30.7	47.8	78.5	1.8%
2020 LSARP*: Natural Resources and the Environment	2.7	4.6	10.5	6.7	24.5	33.9	58.4	1.3%
Genomics Technology Platforms	87.7	6.2	3.9	0.0	97.8	113.2	211.0	4.9%
Genomic Applications Partnership Program	80.5	17.9	32.6	18.9	149.9	327.2	477.1	11.0%
Cancer Stem Cells Consortium	22.7	0.0	0.0	0.0	22.7	34.8	57.5	1.3%
Disruptive Innovation in Genomics	15.6	0.0	0.0	0.0	15.6	22.1	37.7	0.9%
Bioinformatics and Computational Biology	17.0	1.1	0.7	0.0	18.8	20.5	39.3	0.9%
Structural Genomics Consortium	14.5	0.4	0.3	0.0	15.2	121.3	136.5	3.1%
Strategic Initiatives	5.7	0.5	0.5	0.0	6.7	27.1	33.8	0.8%
Advancing Big Data Science	2.0	0.0	0.0	0.0	2.0	4.0	6.0	0.1%
GE <sup>3</sup> LS Third Modality	1.0	0.0	0.0	0.0	1.0	1.0	2.0	0.0%
Regional Priorities	5.1	0.5	0.4	0.0	6.0	15.0	21.0	0.5%
Genomics in Society Interdisciplinary Research Teams	1.5	0.7	0.5	0.0	2.7	3.1	5.8	0.1%
<i>All For One</i> Health Data Ecosystem	0.0	1.5	2.7	0.0	4.2	4.2	8.4	0.2%
COVID Regional Genomics Initiative	1.4	0.1	0.0	0.0	1.5	3.0	4.5	0.1%
Canadian COVID-19 Genomics Network (CanCOGeN)	34.9	4.5	0.0	0.0	39.4	0.0	39.4	0.9%
Challenge Initiatives	0.0	0.0	18.5	37.5	56.0	123.2	179.2	4.1%
COVID Relief Funding	1.6	8.4	0.0	0.0	10.0	0.0	10.0	0.2%
Genome Centres' operations	112.2	5.3	5.3	0.0	122.8	178.6	301.4	6.9%
	<b>1,436.6</b>	<b>64.6</b>	<b>91.8</b>	<b>63.1</b>	<b>1,656.1</b>	<b>2,533.5</b>	<b>4,189.6</b>	<b>96.5%</b>
<b>Genome Canada operations</b>	<b>138.6</b>	<b>7.1</b>	<b>7.0</b>	<b>0.0</b>	<b>152.7</b>	<b>0.0</b>	<b>152.7</b>	<b>3.5%</b>
<b>Total disbursements</b>	<b>1,575.2</b>	<b>71.8</b>	<b>98.8</b>	<b>63.1</b>	<b>1,808.9</b>	<b>2,533.5</b>	<b>4,342.4</b>	<b>100.0%</b>
<b>Excess receipts over disbursements</b>	<b>25.1</b>	<b>7.6</b>	<b>-19.4</b>	<b>-9.1</b>	<b>4.2</b>			
<b>Opening cash balance</b>	<b>0.0</b>	<b>25.1</b>	<b>32.7</b>	<b>13.3</b>	<b>0.0</b>			
<b>Closing cash balance</b>	<b>25.1</b>	<b>32.7</b>	<b>13.3</b>	<b>4.2</b>	<b>4.2</b>			

## 5.0 Risk assessment, mitigation measures and performance monitoring

Genome Canada has a wide array of policies, systems and processes that have been developed over time to proactively address risk assessment and mitigation strategies. They also address ongoing performance and evaluation monitoring through established governance structures. Genome Canada's *Performance, Evaluation, Risk and Audit Framework* is revised and approved by the Board of Directors annually.

### Risk management

Risk management is integrated into all our operational, managerial and governance activities. A formal risk management framework is in place and is updated and approved by the Board of Directors annually. Strategic risks arising from both the internal and external operating environments, are assessed on an ongoing basis.

- At the project selection level, risk is managed and mitigated through a process that restricts funding to certain projects. Namely, these are projects deemed to have the greatest probability of success from both a scientific and managerial point of view. The viability of each project's success is further monitored through ongoing structured reviews.
- At the operational level, officers of Genome Canada identify risks and propose strategies for mitigating and reporting. Examples include due diligence routines for reviews of draw requests and of funded projects.
- At the managerial level, policies, systems, processes and procedures (administrative, financial, human resource management, cybersecurity and research security) are developed, implemented and monitored.
- At the governance level, the Board of Directors and its Committees are aware of their risk management responsibilities. They exercise modern governance practices with respect to policy approval and oversight.
- The Audit and Investment Committee is responsible for the monitoring of risk and mitigation strategies and regularly reviews the organization's corporate risk profile.
- The Genome Canada internal working environment culture is one that values honesty, integrity and ethical conduct.

### Annual audit

The annual audit of Genome Canada's financial statements is conducted in accordance with generally accepted Canadian auditing standards. The statements are filed with ISED by July 31 of each fiscal year. The objective is to express an opinion on whether Genome Canada's financial statements present fairly—in all material respects—the financial position, results of operations and cash flow of the corporation.

Upon completion of the audit, the financial statements and a summary of audit findings are presented to the Audit and Investment Committee. They are then presented to the Board of Directors for approval. The financial statements can be found on our website:

[www.genomecanada.ca](http://www.genomecanada.ca).

## Recipient audit

Genome Canada has developed and implemented a recipient audit framework in consultation with the Genome Centres. As part of this exercise, a risk assessment tool was developed to enable the Genome Centres to identify projects that would undergo a detailed compliance audit. This includes the Technology Platforms. This framework was introduced to bring a common approach to recipient audits across Canada and to improve the management control framework within which genomics research is administered.

## Performance measurement and evaluation

Genome Canada's funding agreement with ISED specifies that Genome Canada will provide reporting on data collected in the past fiscal year. This is described in the *Performance Information Strategy*.

## Performance monitoring

Genome Canada has adopted a corporate scorecard to monitor the organization's performance. This scorecard monitors performance in five key areas: delivering high-impact research that benefits Canada; delivering effective, purpose-fit programs that support the mission; promoting responsible application of genomics; demonstrating financial success; and indicators related to our COVID-19 initiatives. The Board reviews the scorecard every quarter.

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