



***Preliminary Recommendations
for Budget 2019
(for discussion)***

Featuring:

- 1. Tackling Toxics*
- 2. Phasing out Fossil Fuel Subsidies*
- 3. Sustainable Agriculture*
- 4. Freshwater Protection*

2018 June 12



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This document will also be available online, at www.greenbudget.ca. We expect the Green Budget Coalition’s final *Recommendations for Budget 2019* to be available, in both French and English versions, and circulated to parliamentarians and senior government officials, by mid-September 2018.

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Departmental Acronyms

AAFC: Agriculture and Agri-Food Canada
 CMHC: Canada Mortgage and Housing Corporation
 DFO: Fisheries and Oceans Canada
 ECCC: Environment and Climate Change Canada
 Finance: Finance Canada
 GAC: Global Affairs Canada
 HC: Health Canada
 INAC: Indigenous and Northern Affairs Canada

IS: Indigenous Services Canada
 InfC: Infrastructure Canada
 ISED: Innovation, Science & Economic Development
 NRCan: Natural Resources Canada
 PC: Parks Canada
 PMRA: Pesticide Management Regulatory Agency
 PS: Public Safety Canada
 StatCan: Statistics Canada

Executive Summary

Canada's environment is central to Canadian prosperity.

The Green Budget Coalition (GBC), active since 1999, brings together twenty of Canada's leading environmental and conservation organizations (*logos on front cover*), representing over 1,000,000 Canadians, to present an analysis of the most pressing issues regarding environmental sustainability in Canada and to make recommendations to the federal government regarding strategic fiscal and budgetary opportunities.

The Green Budget Coalition was very appreciative of the major funding (\$1.3 billion) for protected areas and species at risk in Budget 2018, and the efforts of many parliamentarians and government officials that supported this announcement. We also appreciated Budget 2018 funding for environmental laws, science, carbon pricing, whales, and First Nations drinking water.

However, many more actions and investments are still needed to put Canada on an effective path towards protecting Canadians' health, playing a responsible role in addressing climate change, and protecting our air, water, unique biodiversity and natural heritage.

In that context, in Budget 2019 and fiscal announcements in the preceding months, the Green Budget Coalition recommends that the Government of Canada prioritize measures to advance the following four objectives - each of which would create notable environmental, economic and social benefits for Canadians from coast to coast:

- 1) **Tackling Toxics** - Provide regulatory departments and agencies (ECCC, HC, PMRA) with sufficient resources to meet current and anticipated federal legislative requirements (CEPA, 1999, PCPA) for managing toxic substances, including pesticides, to protect the health of Canadians and our environment.
- 2) **Phasing out fossil fuel subsidies** - Continue progress on aligning fossil fuel tax policy with the Government's climate change objectives through increased transparency and reporting, a volunteer peer review, and defining "efficient" fossil fuel subsidies.
- 3) **Delivering on Canada's Commitments to Sustainable Agriculture** - Invest in agri-environmental programs, research & development, and food waste prevention programs to make Canada a trusted global leader in sustainable food production that improves the environment, resilience and competitiveness of the agricultural sector.
- 4) **Delivering 21st Century Management for Freshwater Protection** - To address aquatic habitat, land-based run-off of nutrients and pollution, balancing hydroelectric development with river connectivity and flows, water quality and quantity challenges, caused by climate change and changing land use.

This document also outlines a number of complementary recommendations, including for oceans, migratory birds, carbon pricing, international climate financing, cleaner Arctic ship fuels, zero emission vehicles, First Nations drinking water and wastewater, zero emission vehicles, community-owned clean energy, healthy homes, environmental data and science, and allocating Budget 2018 funding for protected areas, species at risk and environmental laws.

Your advice and opportunities for discussion on how best to improve and implement these recommendations would be welcome. Lead contacts are listed for each recommendation.



Who We Are

The **Green Budget Coalition (GBC)**, founded in 1999, brings together twenty leading Canadian environmental and conservation organizations (logos below), which collectively represent over 1,000,000 Canadians, through our volunteers, members and supporters.

Our Mission

The mission of the Green Budget Coalition is to present an analysis of the most pressing issues regarding environmental sustainability in Canada and to make a consolidated annual set of recommendations to the federal government regarding strategic fiscal and budgetary opportunities.

Our Vision

The Government of Canada contributes to securing and maintaining the environmental sustainability of Canada through appropriate investments in environmental programs, and through the adoption of appropriate policies related to taxation, pricing and subsidies.

Objectives

- To bring together the collective expertise of leading Canadian organizations regarding the important environmental issues facing Canada;
- To prepare and promote prioritized recommendations annually to the federal government on policies, actions and programs whose implementation would advance environmental sustainability and which could be reflected in the federal budget; and
- To monitor federal budget decisions and spending estimates and to track GBC recommendations with a view to assessing the likely effect of budgetary and fiscal decisions on the environment and to evaluating the GBC's impact on fiscal policy and budgetary actions.

The Green Budget Coalition makes its decisions on a consensus basis. The GBC's Co-Chairs are Stephen Hazell, Director of Conservation and Legal Counsel, Nature Canada, and Lisa Gue, Senior Researcher and Analyst, David Suzuki Foundation. Nature Canada hosts the GBC.

The Green Budget Coalition sincerely thanks the Echo, McLean, The J.W. McConnell Family, George Cedric Metcalf, and Salamander Foundations for their generous financial support. The GBC's efforts are largely funded by its members and these foundations.



TACKLING TOXICS



TACKLING TOXICS

Recommendation Summary

Regulatory departments need adequate resources to meet federal legislative requirements for assessing and managing toxic substances, including pesticides, and to respond to scientific developments in the understanding of environmental and health risks, changing use patterns and new products on the market. To protect the health of Canadians and our environment from toxic exposures, the Green Budget Coalition recommends the following investments in Budget 2019:

1. Preparing for next generation chemicals management:
 - a. Preparing to implement legislative changes to modernize the Canadian Environmental Protection Act, 1999: **\$25 million over two years** for Environment and Climate Change Canada and Health Canada;
 - b. Ongoing chemical assessment, research and monitoring, and risk management activities beyond Phase 3 of the Chemicals Management Plan: **\$100 million annually**, starting in 2021-22 and ongoing;
2. Increased investment in enforcement of the Canadian Environmental Protection Act, 1999, and pollution prevention provisions in the Fisheries Act: **\$50 million in 2019-20, and then \$100 million annually ongoing.**
3. Increased investment for Health Canada's Pest Management Regulatory Agency to meet legal requirements under the Pest Control Products Act to assess risks from pesticides and upgrade its compliance and enforcement program: **\$50 million in 2019-20, and then \$100 million annually ongoing.**
4. Reviving and expanding the National Pesticides Monitoring and Surveillance Network: **\$10 million over five years** for Environment and Climate Change Canada

Background and Context

Pollution and exposure to toxic substances have a significant impact on Canadians' health, the environment and our economy. Health Canada estimates poor air quality alone results in 14,000 to 15,000 deaths every year.¹ The annual economic cost of adverse health effects caused by toxic exposures is estimated to be in the tens of billions of dollars.² There is growing scientific evidence that toxic chemicals, including pesticides, are associated with cancer, learning and behaviour problems in children, asthma, allergies, diabetes and other chronic conditions. Nearly nine in 10 Canadians are concerned about children's exposure to toxics from consumer products and impacts on wildlife.³

Pesticides are a unique category of toxic substances. Toxicity to targeted pests is intentional. However, pesticides can contaminate the environment and sometimes harm non-target organisms, as well. Human

¹ Canadian Council of Ministers of Environment, 2017 Air Quality 2017. <http://airquality-qualitedelair.ccme.ca/en/>

² International Institute for Sustainable Development, Costs of Pollution in Canada: Measuring the impacts on families, businesses and governments, June 2017. <http://www.iisd.org/library/cost-pollution-canada>

³ The Gandalf Group, Canadian Public Opinion on Toxics, June 2017. Commissioned by Environmental Defence.

exposure to even very low levels of pesticides is also associated with a wide range of adverse health effects.⁴

1. Preparing for next-generation chemicals management

- a. **The Green Budget Coalition recommends an investment of \$25 million over two years to support modernization of Canadian Environmental Protection Act, 1999 (CEPA).** CEPA is Canada's main law governing pollution prevention and management of toxic chemicals. In June 2017, the House of Commons Standing Committee on Environment and Sustainable Development completed a year-long study of CEPA and made 87 recommendations to strengthen and modernize the act. Key recommendations related to chemicals management include: cumulative risk assessment; alternatives assessment; recognition of the human right to a healthy environment and protections for vulnerable populations; and prohibiting certain categories of substances of very high concern (such as carcinogens and reproductive toxicants) unless industry demonstrates that a particular use is safe. Environment and Climate Change Canada and Health Canada will need to develop or refine processes for implementing these recommendations. This work should begin in 2019 to prepare for forthcoming changes to the CEPA legislative requirements. The recommended investment would support a scan of approaches in other jurisdiction, review of applicable methodologies and development of policy, guidance and regulations.

- b. **The Green Budget Coalition recommends early renewal of the budget for chemicals management at current levels – \$100 million annually – starting in 2021.** The Chemicals Management Plan (CMP) was launched in 2006 and renewed in 2011 and again in 2016. Current funding (\$491.8 million over five years) will sunset in March 2021. Pursuant to the CEPA, the Government has committed to completing assessments of some 4,300 legacy toxic substances by 2021, marking an important juncture.

CMP has also funded important monitoring and research on chemicals in the environment, including the human biomonitoring component of the Canadian Health Measures Survey, contaminant testing in the Canadian House Dust Study, the multi-year investigations of environmental exposures in the Maternal and Infant Research on Environmental Chemicals study, the national network of environmental monitoring and surveillance, and studies of persistent organic pollutants in the Arctic Monitoring and Assessment Program, to name a few. This research informs decision-making under CEPA, the Pest Control Products Act, and other legislation. Renewed funding will be necessary to allow these longitudinal studies to continue, and indeed expand their scope. A larger focus on pesticide exposure is particularly necessary.

Environment and Climate Change Canada and Health Canada are currently consulting on new directions for chemicals management in the next decade, which must address emerging challenges such as nanomaterials and the quasi-persistence of certain substances where widespread use results in continuous exposure challenging traditional definitions of persistence or bioaccumulation. It is crucial that Budget 2019 signal a commitment for ongoing investment in chemicals management to support appropriate preparations and enable a smooth transition in 2021.

⁴ Roberts, J. R., C. J. Karr, et al. "Pesticide Exposure in Children." *PEDIATRICS* 130, no. 6 (December 1, 2012): e1765–88. <https://doi.org/10.1542/peds.2012-2758>.

2. Improving enforcement

The Green Budget Coalition recommends investing in modernizing and expanding enforcement of federal toxics and pollution prevention laws: \$50 million in 2019-20, and then \$100 million annually ongoing for Environment and Climate Change Canada's Enforcement Branch. Environment and Climate Change Canada is responsible for enforcing many of the requirements under CEPA, as well as pollution prevention provisions in the Fisheries Act. This work includes enforcing more than 56 CEPA regulations. Budget 2008 provided \$21 million over two years to boost the department's compliance and enforcement activities. A decade later, new resources are again needed to respond to today's enforcement challenges. Planned spending on compliance and enforcement activities related to minimizing pollution in 2018-19 is \$34 million⁵, down from \$43.2 million in 2011-12 -- although the number of CEPA regulations has increased. The department's Forward Regulatory Agenda, 2018-2020, indicates plans to develop or amend 21 new CEPA regulations to deliver on its mandate to protect the environment.⁶ Furthermore, enforcement challenges are increasingly sophisticated and require new resources -- not only additional environmental inspection officers and training, but also investigative and forensic capabilities. Without robust compliance and enforcement capacity, federal pollution prevention laws and regulations are unlikely to achieve the intended results.

3. Expanding the capacity of Health Canada's Pest Management Regulatory Agency

The Green Budget Coalition recommends increasing Health Canada's allocation for pesticide regulation to \$50 million in 2019-20, and then \$100 million per year to enable the PMRA to fulfil legal obligations under the Pest Control Products Act. The Act requires the Health Minister regulate all pesticides used in Canada and ensure risks to human health and the environment are acceptable. This includes pre-market assessment and periodic post-market re-evaluation (and in some cases special review) by the PMRA.

Post-market re-evaluation

More than 400 pesticide active ingredients registered before 1995 must be re-evaluated applying modern scientific methods. The PMRA has committed to complete this work by 2020, but 35 large and complex reviews remain incomplete; and some have been underway for nearly 20 years. Concurrently, the PCPA requires the re-evaluation of every registered pesticide on a 15-year cycle, as well as unscheduled special reviews of health or environmental risks in certain circumstances. In recent years, the PMRA's re-evaluation workload more than doubled from 35 planned decisions in 2015-16 to 82 in 2017-18, often involving diverse and competing stakeholder expectations. Concerningly, the PMRA expects delays in 20 percent of re-evaluations and special reviews, due in large part to resource constraints, and this will result in a growing backlog.⁷

Furthermore, in 2016, the PMRA committed to ending the controversial practice of conditional registrations (i.e., registering a pesticide on the basis of incomplete information, conditional on data being submitted later). However, as of November 2017, 37 pest-control products remain conditionally registered, and new data provided must also be reviewed.

⁵ Departmental Results Report 2016 to 2017, Department of Environment. <https://www.canada.ca/en/environment-climate-change/corporate/transparency/corporate-management-reporting/departmental-results-report/2016-2017/analysis-trends-spending-hr.html>

⁶ Forward Regulatory Plan 2018 to 2020, Environment and Climate Change Canada <https://www.canada.ca/en/environment-climate-change/corporate/acts-regulations/forward-regulatory-plan/2018-2020.html>

⁷ Health Canada, PMRA Stakeholder Web Session, 1 November 2017, Sir Frederick Banting Research Centre. Presentation by Margherita Conti.

Cumulative risk assessment

As well, in April 2018, the PMRA published a framework for assessing cumulative risks of groups of pesticides with a common mechanism of toxicity, as required by the PCPA. Implementing the new framework will be complex and must be properly resourced.

Compliance and enforcement

Re-evaluations frequently result in changes to use requirements and/or restrictions intended to reduce identified risks to human health and/or the environment, and these are specified on the product label. A 2015 audit found that of the 238 historical re-evaluations then completed, 90 per cent resulted in label changes.⁸ A robust compliance and enforcement program is essential to ensure pesticide applicators follow label instructions. However, in 2016-17, Health Canada conducted just 1,300 targeted oversight inspections -- less than 1 per cent of the 193,000 farms in Canada (not to mention non-agricultural uses of pesticides). The average rate of compliance was just 65 per cent and, nearly one in four regulated parties previously identified as out of compliance were found to still be out of compliance in follow-up surveillance inspections.⁹ Clearly, a more robust compliance and enforcement program is needed to ensure the risk reduction requirements and restrictions that result from re-evaluation are followed.

Health Canada's planned spending on pesticide regulation in 2017-18 is approximately \$40 million¹⁰ (including a \$5 million allocation from the Chemicals Management Plan). Roughly half of this budget supports the post-market re-evaluation and special review program. The level of funding available for federal pesticide regulation has remained unchanged in recent years despite the PMRA's significantly expanded workload and compliance challenges. The PMRA risks falling further behind in meeting its legal obligations. The recommended investment would enable the PMRA to complete the remaining re-evaluations of pre-1995 pesticide approvals, keep pace with cyclical re-evaluations and special reviews, address outstanding conditional registrations, implement cumulative effects assessments, and upgrade its compliance and enforcement program.

4. Re-invest in the National Pesticides Monitoring and Surveillance Network

The Green Budget Coalition recommends investing \$10 million over five years to revive and expand the National Pesticides Monitoring and Surveillance Network, to be led by Environment and Climate Change Canada. The PMRA relies on monitoring data from other government departments, particularly Environment and Climate Change Canada, and external sources in assessing risks from pesticides. While a Memorandum of Understanding exists between the PMRA and ECCC to address areas of shared interest, including research, monitoring and surveillance,¹¹ it lacks dedicated funding. Funding for the former National Pesticides Monitoring and Surveillance Network (approximately \$1.2 million per year) was discontinued in 2009, with the sunsetting of the Building Public Confidence in Pesticide Regulation and Improving Access to Pest Management Products Initiative. A comprehensive, national water-monitoring program for pesticides is needed to deliver

⁸ 2015 Fall Reports of the Commissioner of the Environment and Sustainable Development, Report 1 - Pesticide Safety. http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201601_01_e_41015.html#hd4c

⁹ Health Canada's Pest Management Regulatory Agency/Regulatory Operations and Regions Branch Compliance and Enforcement Report 2016-2017.

¹⁰ 2017-18 Departmental Plan: Health Canada <https://www.canada.ca/en/health-canada/corporate/transparency/corporate-management-reporting/report-plans-priorities/2017-2018-report-plans-priorities.html#a627>

¹¹ Memorandum of Understanding Between Environment Canada and the Pest Management Regulatory Agency, Health Canada, 22 December 2003, 10 pp. https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/cps-spc/alt_formats/pacrb-dgapcr/pdf/legislation/acts-lois/pest/mou-ec-entente-eng.pdf

robust data, for both environmental and human exposure assessment, in support of regulatory decisions. This will complement other recommended investments in freshwater protection (see later in this document).

Toxics and Gender

Women's bodies are our first environment, and breastfeeding infants, not their mothers, are at the top of the food chain. Toxic chemicals can cross the placenta and, while breastfeeding should never be discouraged, it is clear that women and their breastfeeding infants are disproportionately exposed to toxic substances. Physiologically, women have greater body fat than men increasing their body burdens of toxic substances that bind to fats. Likewise, babies carry extra fat. Far from being passive storage, body fat, or adipose tissue, is active endocrine tissue dynamically involved in all aspects of metabolism, growth and development.

Fetal development is the time of greatest vulnerability to toxic substances, and often highest exposure. Toxic substances are associated with birth defects, impacts on healthy brain development, low birthweight and/or preterm birth, and associated impacts on immune system development contributing to risks for allergies and asthma. Increasing evidence points to many toxic effects being mediated through disruption of the endocrine system, the body's complex chemical signalling that orchestrates all stages of reproduction, growth, development, and homeostasis.

Beyond physiological differences, women tend to be exposed to greater levels of toxic substances from personal care products, household cleaners, and sales receipts, including in some female-dominated jobs such as retail sales or hair/nail salons, compared to men. Many such products contain phthalates and/or bisphenol A, substances known to mimic hormones and that may impair brain development. As well, women are often responsible for household purchasing decisions. In the absence of a strong regulatory regime to prohibit toxic chemicals in consumer products, or label them more accurately for toxic components, the consumer is ill-equipped to identify and choose safer products, and the burden of navigating this landscape falls predominantly to women.

Investing in reducing exposures to toxics aligns with other government initiatives to support the health and wellbeing of Canadians, particularly women, children and other vulnerable communities, and address gender inequities.

Conclusion

Re-investing in chemicals management, including increased capacity for pesticides regulation, is crucial to meet current and forthcoming legislative requirements and better protect against environmental and health threats. Together, these investments will help position Canada for next-generation chemicals management.

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Image: CC Flickr/Kris Krug

PHASING OUT FOSSIL FUEL SUBSIDIES



PHASING OUT FOSSIL FUEL SUBSIDIES

Recommendation Summary

In its election platform, the government committed to stop subsidizing fossil fuels in Canada. The commitment was reaffirmed at the September 2016 G20 summit in Hangzhou, China. As a member of the G20, Canada officially recognizes that inefficient subsidies for fossil fuels undermine efforts to deal with climate change, encourage wasteful energy consumption, reduce energy security, and impede investment in clean energy. However, in 2017 Canada's Auditor General found that certain tax provisions in support of the fossil fuel industry have not been reformed by the Finance Department. In addition, the Auditor General found that the Finance Department had not developed an implementation plan with timelines to support the phase-out by 2025 and the government had no plan to reform flow-through shares, which allow fossil-fuel corporations to transfer tax deductions to investors.

Changes announced in Budget 2017 on fossil fuel subsidy reform were a positive step forward. The Green Budget Coalition (GBC) calls on the Government to take the most important next steps by:

1. Disclosing costs of all federal direct spending and value of annual tax deductions claimed for exploration, development and production of coal, oil and natural gas. This information should also be provided to the Parliamentary Budget Office.
2. Initiating work with partner countries to define "inefficient" fossil fuel subsidies.
3. Proceeding with a volunteer peer review of Canada's fossil fuel subsidies alongside Canada's G20 partners who have already taken part in the process.
4. Committing to not introduce new subsidies for fossil fuels.
5. Legislating a timeline for the phase-out of the following:
 - Accelerated Capital Cost Allowance for Liquefied Natural Gas projects (before 2025)
 - Canadian Development Expenses claims
 - Canadian Exploration Expenses claims, including for unsuccessful exploration
 - Remaining Flow-through Share deductions for fossil fuels oil and gas sector
 - Canadian Oil and Gas Property Expense claims
 - Foreign Resource Expense claims
 - Duty Exemption for Imports of Mobile Offshore Drilling Units in the Atlantic and Arctic
 - The Natural Gas component of the "Deploying Infrastructure for Electric Vehicle Charging and Natural Gas and Hydrogen Refuelling Stations" program
 - Export Development Canada financing for oil and gas companies

Cost: Very Low. Annual savings of several hundred million dollars.

Background and Rationale

In its election platform, the government committed to stop subsidizing fossil fuels in Canada. The commitment was reaffirmed at the September 2016 G20 summit in Hangzhou, China. As a member of the G20, Canada officially recognizes that inefficient subsidies for fossil fuels undermine efforts to deal with climate change, encourage wasteful energy consumption, reduce energy security, and impede investment in clean

energy. However, in 2017 Canada's Auditor General found that certain tax provisions in support of the fossil fuel industry have not been reformed by the Finance Department. In addition, the Auditor General found that the Finance Department had not developed an implementation plan with timelines to support the phase-out by 2025 and the government had no plan to reform flow-through shares, which allow fossil-fuel corporations to transfer tax deductions to investors.

In the North¹², subsidies to offset the price of fossil fuels cost the government millions of dollars annually, \$36.5 million of which goes toward diesel-based electricity generation in Nunavut alone. The true price of diesel is masked by multiple layers of subsidies that reduce the price to an artificial level, creating a barrier to the adoption of renewable energy. While we recognize the importance of ensuring affordable energy access in the north, renewable energy has proven to be reliable, even in extreme climates, and research shows it can save some Arctic communities millions in ongoing costs, even with existing diesel subsidies. The savings would be even more significant if diesel subsidies were shifted to renewable-energy sources instead. There is no reason for the government to continue funding the use of fossil fuels that are not only damaging to the environment and human health, but are more expensive than cleaner forms of energy.

Changes announced in Budget 2017 on fossil fuel subsidy reform were a positive step forward. The Green Budget Coalition (GBC) calls on the Government to:

1. Disclose costs of all federal direct spending and value of annual tax deductions claimed for exploration, development and production of coal, oil and natural gas. This information should also be provided to the Parliamentary Budget Office.
2. Initiate work with partner countries to define "inefficient" fossil fuel subsidies.
3. Proceed with a volunteer peer review of Canada's fossil fuel subsidies alongside Canada's G20 partners who have already taken part in the process.
4. Commit to not introduce new subsidies for fossil fuels.

Cost: Very Low. Annual savings of several hundred million dollars.

We note that unsuccessful exploration expenses can still be deducted from business income and that exploration and development expenses for fossil fuels can still be renounced as flow-through shares.

The GBC further recommends that the Government legislate a timeline for the phase-out of:

- Accelerated Capital Cost Allowance for Liquefied Natural Gas projects (before 2025)
- Canadian Development Expenses claims
- Canadian Exploration Expenses claims, including for unsuccessful exploration
- Remaining Flow-through Share deductions for fossil fuels oil and gas sector
- Canadian Oil and Gas Property Expense claims
- Foreign Resource Expense claims
- Duty Exemption for Imports of Mobile Offshore Drilling Units in the Atlantic and Arctic
- The Natural Gas component of the "Deploying Infrastructure for Electric Vehicle Charging and Natural Gas and Hydrogen Refuelling Stations" program
- Export Development Canada financing for oil and gas companies

¹² WWF Canada & IISD (2017), Tracking Diesel Fuel Subsidies in Nunavut: A mapping exercise, http://assets.wwf.ca/downloads/costing_fossil_fuel_subsidies_in_nunavut.pdf

Environmental Externalities

Also of importance, the fact that Canada does not take negative environmental externalities of fossil fuels into account in fiscal supports to the sector, but instead requires expected costs related to climate change to be borne by taxpayers, acts contrary to aligning federal policy with the government's stated commitment to addressing climate change, and thus effectively acts as a subsidy (although it is not always defined as one). The issue of these externalities was highlighted by the Office of the Auditor General (OAG) in a recent report on subsidies in which the OAG questioned whether current tax provisions available to the fossil fuel sector had been or would be reviewed by government in light of these externalities. As a result of not being expected to take responsibility for the harm caused by their products, the fossil fuel sector is free to pocket profits that do not reflect the harm caused to society and has much less financial incentive to develop more sustainable alternatives to its products.

To address this issue, the Green Budget Coalition recommends that the federal government:

- Identify and quantify costs incurred by Canada as a result of, or in order to prepare for, climate change and investigate any and all options to recover those costs from global fossil fuel interests.

Please see also the Complementary Recommendations, later in this document, regarding Climate Change and Energy Sustainability, particularly on Carbon Pricing and Supporting the Transition to Cleaner Ship Fuels in the Canadian Arctic.

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DELIVERING ON CANADA'S COMMITMENTS TO SUSTAINABLE AGRICULTURE

**To improve the sustainability, resilience and
competitiveness of the agricultural sector**

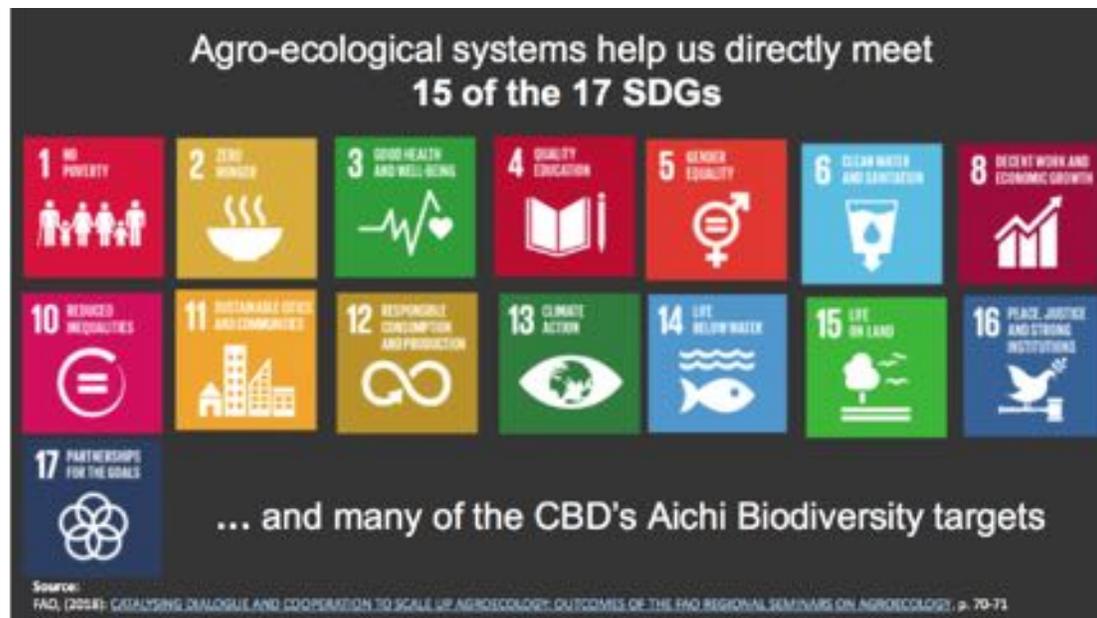


DELIVERING ON CANADA'S COMMITMENTS TO SUSTAINABLE AGRICULTURE

Recommendation Summary

Farming depends on available environmental goods and services to provide healthy soil, a stable climate and clean supplies of water to grow crops and raise livestock. But agricultural pollution, land conversion and climate change are severely damaging these vital services, imposing significant downstream costs on Canadian society as a whole. The time has come for Canada to become a trusted global leader in sustainable food production by minimizing the environmental impacts of our working agricultural landscapes and making this key sector more resilient and competitive. Canada is already committed to meeting specific international and domestic targets on sustainable agriculture and on-farm biodiversity conservation, such as the UN Sustainable Development Goals (SDGs) and Canada's 2020 Biodiversity Targets. However, as noted by the federal Commissioner of Environment and Sustainable Development Spring 2018 reports,¹³ Canada will fail to meet both these targets unless it takes urgent and decisive action. Urgent action also means making significant strategic and targeted investments beyond announcements already made under the new Canadian Agricultural Partnership and a Food Policy for Canada.

In an effort to bring Canada closer to achieving its international commitments, the Green Budget Coalition recommends that Budget 2019 include a series of specific and targeted budgetary allocations in support of environmentally sustainable agriculture. Doing so, as concluded during the UN's FAO Symposium (April 2018), would help Canada meet 15 of the 17 SDGs and also meet many of its national biodiversity targets.



Investment Required

The Green Budget Coalition recommends that Canada invests **\$558 million over the next five years** in agro-environmental programs, research & development in environmentally sustainable agriculture, and food

¹³ The Commissioner of the Environment and Sustainable Development released the following 2 reports in Spring 2018: [Canada's Preparedness to Implement the United Nations' Sustainable Development Goals](#) and "[Conserving Biodiversity](#)"

waste prevention programs (2019-2024) to improve the sustainability, resilience and competitiveness of the agricultural sector.

For the 2019 Budget, the GBC specifically recommends that Canada begin by investing **\$135.5 million of the five year envelope in the programs listed in the second table below**- all programs that should be managed by Agriculture and Agri-Food Canada, in collaboration with other departments.

RECOMMENDED INVESTMENTS (2019-2024)	
Agri-environmental Programs	\$545 million
R&D in environmentally sustainable agriculture	\$110 million
Food waste	\$18 million
TOTAL	\$673 million

RECOMMENDED INVESTMENTS (2019)	
AGRI-ENVIRONMENTAL PROGRAMS <ul style="list-style-type: none"> • Impact assessment of agriculture on biodiversity in Canada (\$2M) • Improvement of indicators/metrics for biodiversity (\$4M) • Establishment of a National Land Management & Stewardship Program (\$50M) • Development of a National Pesticide Reduction Strategy (\$12M) • Establishment of a National Perennial Cover Incentive Program (\$24M) • Establishment of a Pollinator Conservation Initiative (\$12M) • Creation of incentives for provinces to develop Safe Harbour Program (\$5M) 	\$109 million
R&D IN ENVIRONMENTALLY SUSTAINABLE AGRICULTURE <ul style="list-style-type: none"> • On-farm participatory R&D to conserve, breed and adapt seeds for environmentally sustainable farming (\$10M) • R&D in agro-ecological climate change mitigation and adaptation practices (\$12M) 	\$22 million
FOOD WASTE <ul style="list-style-type: none"> • Food Waste Prevention Program (\$4.5M) to reduce the loss of additional natural habitat to farm production 	\$4.5 million
TOTAL	\$135.5 million

Background and Rationale

Investing in environmentally sustainable agriculture leads to a more productive and less polluting sector and creates more green jobs.

As the Barton report highlighted, Canada’s prosperity depends on a vibrant agriculture and food sector- that is a sector that is both financially and environmentally sustainable. Yet, the negative environmental impacts of

this very large and important sector of our economy remain relatively un-checked. Our food system contributes about 30 percent of all greenhouse gas emissions,¹⁴ more than any other sector except energy production, yet agriculture is often overlooked in climate change discussions and action plans, including the Pan-Canadian Framework on Clean Growth and Climate Change. Worldwide, conventional farming practices cost the environment some \$3 trillion per year¹⁵ – almost twice Canada’s annual GDP.¹⁶ At the same time, agricultural productivity is impacted by climate change, such as through droughts, flooding, changing temperatures, new crop pests, and will increasingly do so.

Agriculture can play a more significant role in reversing climate change impacts. Research by the UN Environment Programme indicates that investing in the ‘greening’ of agriculture and fisheries, compared to continuing with ‘business as usual’, would produce \$293 billion more per year by 2050 -- an 11% increase¹⁷ – and doing so would also mean a more productive and less polluting sector that would create more jobs.

It is time for Canada to support greater innovation in this sector through investments that promote greater resilience and sustainability in our food system, especially in the face of climate change. Canada has the potential to become a world leader in environmentally sustainable agriculture that delivers critical environmental and social benefits. Doing so will also help better support gender equality, economic development and green jobs for Indigenous Peoples and new immigrants to Canada, as well as the next generation of farmers all of whom are increasingly choosing environmentally sustainable agriculture.

Gender Analysis: *The future of farming is female*

Women, and especially the generation of young women, are playing an increasingly larger role in agriculture. The 2016 Census of Agriculture showed that:

- While the number of farm operators in Canada is going down, the proportion of women is going up.
- Women accounted for 28.7% of all farm operators in 2016 (up from 27.4% in 2011) – nearly 78,000 of nearly 272,000 farmers in total. Women were most prevalent among farm operators between the ages of 35 and 54, representing nearly a third of the group.
- The percentage of farms with sole female and/or or female & male operators is higher in organic (45%) compared to non-organic (40%).

Yet women face important social and economic barriers to entry, including: the fact that agriculture is still a male-dominated sector (with very few women in senior roles or positions), balancing career and family, and the high capital cost of farmland and farm equipment. Low income women, new immigrants, young and aspiring female farmers, many of whom are not from farming backgrounds and carry student debt, simply cannot afford to take on the high costs of land and equipment, which can cost upward of a million dollars. Furthermore, an increasing number of women are choosing environmentally sustainable agriculture (organics, small ecological diversified farming)- sectors that are still vastly underfunded.

Supporting the leadership of women in agriculture, particularly environmentally sustainable agriculture in which they are leaders, has great potential for the future of farming and women in Canada.

¹⁴ According to Environment and Climate Change Canada, in Canada, one tenth (10.3%) of Canada’s GHG emissions are linked to agriculture. Agriculture also accounts for 27% and 70% of the national CH₄ and N₂O emissions, respectively, mostly due to the use of synthetic fertilizers. See the [National inventory report 1990-2014: Greenhouse Gas Sources and Sinks in Canada](#), p.10.

¹⁵ FAO (2015). [Natural Capital Impacts in Agriculture](#).

¹⁶ Canada’s GDP amounted to 1.53 trillion in 2017.

¹⁷ https://pcfisu.org/wp-content/uploads/pdfs/TPC0632_Resilience_report_WEB11_07_SMALLER.pdf, p. 5

Canada is already a signatory to a number of international agreements that recognize the importance of sustainable agriculture (Agenda 2030, Convention on Biological Diversity, Paris Agreement, etc.) and has developed several related national strategies (ex.: 2020 Biodiversity Targets). Canada has also committed to investments in sustainable agriculture and biodiversity through the Canadian Agriculture Partnership and A Food Policy for Canada. Yet, as the Commissioner of the Environment & Sustainable Development highlighted in her Spring 2018 reports,¹⁸ Canada is falling short and requires more strategic investments beyond announcements already made to achieve meaningful impact and meet its targets.

In recent years, Canada's agricultural sector has made efforts to become more environmentally sustainable. Yet, environmentally sustainable agriculture¹⁹ – that delivers results on multiple fronts: yields, crop resilience, soil health, reduced pollution, etc. – has been largely underfunded and the outcomes clearly reflect this insufficient level of support. As such, more investments in environmentally sustainable agriculture are urgently required.

Recommended Investments

The Green Budget Coalition recommends that the 2019 Budget invest **\$135.5 million in agri-environmental programs, R&D in environmentally sustainable agriculture, as well as food waste prevention programs.**

These new dollars would enhance on-farm biodiversity, as well as water, air and soil health to provide climate resilience & improves the competitiveness of the agricultural sector. These desired outcomes can be achieved as follows:

1. Investing \$127 million in Agri-environmental programs to protect ecological functions of agricultural landscapes & Improve the sector's competitiveness

Improving environmental impacts and function of Canadian farms is critical to the sector's competitiveness- at home and abroad. Canada already has programs that helps farmers show measurable environmental improvements on their farms yet it is not enough to meet Canada's commitments to sustainable agriculture and biodiversity. Canada needs to increase funding allocations to a few targeted critical yet vastly overlooked incentive tools that would help further protect agriculture's ecological function and enhance on-farm stewardship.

- a. **Impact assessment of agriculture on biodiversity in Canada (\$2M).** Canada's commitment to meeting the Aichi Biodiversity Targets of the Convention on Biological Diversity by 2020 include eliminating subsidies harmful to biodiversity. Agricultural policies in Canada have provided many subsidies to producers over the years that target greater agricultural efficiency but have unintended harmful effects on biodiversity (e.g. subsidies to drain surface water resulting in agricultural runoff, wetland drainages, destruction of native prairie grasslands, etc.) To avoid subsidizing the depletion of biodiversity through agricultural policies, an assessment of current agricultural subsidies relative to their negative impacts on sustainability should be conducted, and a new assessment framework should be developed to guide policymakers in avoiding subsidies harmful to biodiversity and providing positive incentives for the conservation and sustainable use of biodiversity in agriculture (\$10M/5 years).

¹⁸ See footnote #2.

¹⁹ Canada's largest and most defined environmentally sustainable is its organic sector. Canada's total organic market (including food and non-food items) is estimated at \$5.4 billion, up from \$3.5 billion in 2012: <https://ota.com/sites/default/files/Canadian%20Organic%20Market%20Report%202017%20teaser.pdf>

- b. **Improvement of indicators/metrics for biodiversity (\$4M).** Following the recommendations from the Commissioner of the Environment and Sustainable Development's Spring Report on Canada's 2020 Biodiversity target accomplishments, the GBC suggests that Canada take decisive steps to improve on our existing goals and targets to halt biodiversity loss in agricultural lands in Canada. Canada has an existing farmland biodiversity indicator, but there are deficiencies with this metric and the way it is reported. The GBC suggests the development of agri-environmental indicators for Canada, which include assessments of key biodiversity components, including groups of vulnerable species and habitats, looking at EU indicators as a potential baseline (\$20M/5 years).
- c. **Establishment of a National Land Management and Stewardship Program (\$50M)** in collaboration with Environment and Climate Change Canada (ECCC) to restore lost or degraded wildlife habitats (e.g. wetlands, woodlands and hedgerows) and their many ecosystem goods and services (EGS). Under this initiative, partners would match federal funds (1:1) to restore EGS on properties in areas that have experienced high historical and ongoing habitat loss - in particularly vulnerable or ecologically sensitive regions. Incentive payments would be results based and only be provided to landowners who agree to restore and subsequently maintain natural habitats and the EGS they provide on their land through long-term habitat conservation easements. Appropriate metrics would be developed to measure the positive impact of this program on biodiversity (federal est. \$250M/5 years).
- d. **Establishment of a National Perennial Cover Incentive (\$24M)** to improve grassland management practices, protect water quality, reduce GHG emissions and enhance biodiversity and wildlife habitat. AAFC can model this investment on the highly successful former GreenCover Program (2003-2008), which paid producers for converting physically and economically marginal croplands to pasture land or native cover land for at least a decade. (est. \$120M/5 years)
- e. **Development of a National Synthetic Pesticide Reduction Strategy (\$12M),** with an overarching vision and an action plan that incentivizes transition to best agroecological practices and organic practices. The National Synthetic Pesticide Reduction Strategy should put an emphasis on transition for all producers in all sectors, by recognizing and supporting incremental and scalable solutions along a spectrum, and also ensuring necessary support for capacity-building and incentives for transitioning away from synthetic pesticide use in agriculture (ex: transition payments for producers, coverage of 90% of fees for organic agronomic and consulting services, supports to farmer networks, etc.) Examples of national synthetic pesticide reduction strategies can be found around the world, like in France, Germany and the UK. Also, the province of Quebec has an ambitious Pesticide Reduction Strategy that should be used as a strong benchmark for what needs to be encouraged across all provinces and territories. Federal investment (\$60M/5 years) to be matched by provinces in 1:1 ratio.
- f. **Establishment of a Pollinator Conservation Initiative (\$12M).** The GBC recommends that AAFC and ECCC establish a Research Fund to enable independent scientific research and innovation in support of managed and wild pollinators and their habitat in the context of expanding agricultural production and climate change mitigation and adaptation. This fund should be renewed annually (\$8 million/yr) and should also be accompanied by a Pollinator Protection Program (\$4 million/yr) that provides increased scientific capacity to deliver national baseline

monitoring and reporting, set population and habitat targets for wild pollinators, develop national policy, provide incentive programs for producers to enhance on farm pollinator habitat and reduce harmful effects of pesticides, and ensure policy coherence among all other agricultural program areas (\$60M/5 years).

- g. **Creation of incentives for provinces to develop Safe Harbour Program (\$5M).** Canada and the provinces should consider a species at risk “safe harbor” program that encourages farmers to protect and enhance species at risk populations on their land without downside risk. This program has been in place in the USA for some time (\$45 million spent in 2016) and has proven to deliver results (\$25M/5 years).

2. Investing \$22 million in R&D in environmentally sustainable agriculture

Investments in R&D for environmentally sustainable agriculture, especially in diversified organic agriculture, and on-farm participatory plant breeding, is supporting an agricultural sector that is responding remarkably well to climate change, helps lower our environmental footprint, and benefits all farmers. Yet, investments in this field have been far and few: from the \$649.5 million that went into R&D in agriculture in 2015, only 0.25% went to organics. The Green Budget Coalition recommends that AAFC use its authority and budget to prioritize and scale up research and knowledge transfer by investing \$22 million a year²⁰ (representing 4.4% of the total envelope committed to R&D for agriculture in 2017²¹) in environmentally sustainable agriculture over the next 5 years. The Green Budget Coalition recommends that Canada starts by funding the following programs in the 2019 budget:

- a. **On-farm participatory R&D to conserve, breed and adapt seeds for environmentally sustainable farming (\$10M).** Seeds that are bred to perform without the use of harmful synthetic fertilizers and pesticides are key to realizing the full potential of environmentally sustainable agriculture in Canada.²² On-farm participatory R&D pairs the knowledge of farmers with the knowledge of researchers. Its internationally-established methodologies are cost-effective approaches to breed new varieties of organic seeds, increase the quality, quantity and diversity of seeds adapted to low input systems, and engage farmers to strengthen biodiversity in their fields. Many of Canada’s trading partners are seizing the opportunity to invest in on-farm participatory breeding of organic seeds (e.g. EU, United-States). Canada can do the same, by supporting existing initiatives leading in organic seed breeding (\$5M)²³ and by investing in on-farm seed conservation efforts (\$5M) to preserve the diversity which agriculture depends on, especially in light of climate change.
- b. **R&D in agro-ecological climate change mitigation and adaptation practices (\$12M).** GBC recommends that Canada continue and increase research and investments to assist the agriculture sector in improving climate-resilience via agro-ecological climate mitigation and adaptation practices that improve soil health. This should include:

²⁰ In addition to what is currently invested in R&D through the new Canadian Agricultural Partnership.

²¹ R&D in agriculture in 2017 was estimated to be 557 million, down from 649.5 million in 2015.

²² Currently, 95% of seeds on the market are bred for conventional agriculture, and not organic- meaning that they are bred to perform under controlled environment and with the use of synthetic fertilizers and pesticides.

²³ This is in line with one of the recommendations of the Commissioner of the Environment and Sustainable Development [Conserving Biodiversity](#) report (Spring 2018) to support existing work on the ground by NGOs on on-farm biodiversity.

- i. **CLIMATE CHANGE MITIGATION: R&D into the soil carbon capturing potential of organic systems and agro-ecological practices (\$6M)** (e.g. Identifying key elements of agricultural practices like cover cropping, long-term crop rotations and integrated perennial cropping systems, that create high soil fertility, resiliency and high levels of captured carbon, in situations of reduced applications of synthetic pesticide and fertilizers.) Ensure that practical soil evaluation methodologies are considered for future widespread on-farm application.
- ii. **CLIMATE CHANGE ADAPTATION: R&D on organic and agro-ecological practices that allow Canadian agriculture to continue to thrive in unstable climate conditions (\$6M).** In order for Canadian agriculture to remain viable and competitive, tools and practices for successful adaptation to climate change must be developed, including the development of biocontrol for new pests emerging under climate change conditions.

Investing in R&D in Organics Benefits the Entire Agricultural Sector

Organic agriculture is particularly well placed to contribute to Canada's ambitious 2025 economic growth goals for agriculture in a way that is environmentally sustainable. With more than \$5.4 billion in retail sales in 2017 (up from \$3.5 billion in 2012), and over 5,400 certified organic operations across the country, organic agriculture stands out as the fastest growing environmentally sustainable agricultural sector in Canada. Investments in R&D for organic agriculture, especially in diversified organic agriculture, and on-farm participatory plant breeding, is supporting a long-neglected agricultural sector that is responding remarkably, and that benefits all farmers. Many of the best environmental agricultural practices (ex: crop rotation, green manure, etc.) came from the organic sector and have spread to all producers. Investments are urgently needed: from the \$649.5 million that went into R&D in agriculture in 2015, only 0.25% went to organics.

3. Investing \$ 4.5 million in food waste prevention programs to reduce the pressures on environmental goods and services

In Canada, an estimated \$107 billion of food and associated costs (e.g., water, energy, labour) is wasted every year.²⁴ The impact of wasting food puts pressure on our farmers and our natural landscapes. Agriculture and Agri-Food Canada estimates that food waste is the source of about 3% of total Canadian GHG emissions and that these emissions are not included in estimated GHG emissions from agriculture²⁵. Preventing food waste enables all of us to do more with less, preventing the loss of additional natural habitat for agricultural production.

- a. **\$6 million to Convene a multi-stakeholder roundtable on food waste prevention** with representation from First Nations, provinces and territories, consumer groups, civil society, farmer groups, and industry (distribution, processing, retail). This should include:
 - i. Cross-sectoral identification of systemic opportunities (through regulations, policies, incentives, subsidies, and partnerships) to prevent food waste in ways that don't create

²⁴ Gooch, M.V., Felfel, A., and Glasbey, C. 2014. "\$27 Billion Revisited: The Cost of Canada's Annual Food Waste." Value Chain Management, International.

²⁵ Standing Committee on Agriculture and Agri-Food (2018). Report 11: [Toward a resilient Canadian Agriculture and Agri-Food System: Adapting to climate change](#), p. 11

- new negative environmental or social consequences (e.g., wrapping food in plastic and creating plastic waste in order to prevent food loss) (\$1M);
- ii. Build on the government's existing intention to improve the measurement of food waste²⁶ (within Canadian departments and in partnership with USA and Mexico to develop a shared measurement framework, targets and monitor (\$1M).
 - iii. Work with Health Canada and CFIA to clarify best before / expiry labelling for consumers and retailers. (\$1M)
 - iv. Convene a Community of Practice of diverse actors working at the regional or national level to advance best practices and standards for preventing food waste. (\$3M)

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²⁶ <http://www.cec.org/our-work/projects/measuring-and-mitigating-food-loss-and-waste>



**DELIVERING 21ST CENTURY MANAGEMENT
FOR FRESHWATER PROTECTION**



DELIVERING 21ST CENTURY MANAGEMENT FOR FRESHWATER PROTECTION

Recommendation Summary

Water stewardship is the greatest challenge of our time. Growing populations. Increasing demand for food and energy. Urbanization. Climate change. These 21st century pressures are mounting and compounding; its effective management is critical to the health of our environment, our economy and to the people of Canada.

Canada needs a Freshwater Protection Plan. This plan will consist of new and expanded investments in the following:

1. Improving Canada's ability to address water challenges due to climate change and changing land-use.
2. Creating an aquatic habitat restoration economy
3. Reducing land-based run-off of nutrients and pollution in Canada's watersheds
4. Balancing hydroelectric development with improved river connectivity and flow

Investment Required:

To deliver on these commitments, the Green Budget Coalition recommends the following federal investments:
\$130 million in 2019-2020, and
\$560 million over the subsequent four years (2020-2024).

Background and Rationale

Sustainable management of our water resources is critical to Canada's future. Growing populations. Increasing demand for food and energy. Urbanization. Climate change. These 21st century pressures are mounting and compounding. We feel them through our water more than in any other way.

Already, more than 20 per cent of the world's fresh water fish are extinct or have become imperiled. And it's estimated that by mid-century most of the freshwater ecosystems in the world will be in significant trouble.

It's tempting to think of all this as "someone else's problem." Canadians have always believed that we live in a water-rich country. But the fact is: Canada has a water problem, and not recognizing this is a problem in and of itself. According to RBC's Water Attitudes Survey (2018), "Canadians are more convinced about the risks to our water quality and supply than they were a decade ago, yet confidence in our ability to meet long-term water needs remains unchanged (at 84 per cent)."

This is largely because, for decades, Canada has failed to collect comprehensive information on a national scale about the health of our freshwater ecosystems. But what we do know now is troubling.

Unpredictability is the new normal. Extreme water events—floods in Toronto and Calgary, droughts in B.C.—are becoming more common. The normal water cycles that people expect or count on are becoming disrupted. This unpredictability threatens food production, jeopardizes communities and costs Canada millions

of dollars. Climate change already affects every sub-watershed in Canada²⁷ and is altering abundance, growth, and recruitment of several North American inland fishes, with particularly severe impacts on coldwater species.²⁸ Habitat loss due to agriculture, urbanization and forestry is extensive in a majority of sub-watersheds. And, pollution from agricultural runoff, wastewater treatment, mining, pipeline spills, oil and gas development and other activities is high or very high in more than one-third of our sub-watersheds.

Building on prior investments, Canada needs a new approach: A Canadian Freshwater Protection Plan.

A Canadian Freshwater Protection Plan will consist of new and expanded investments in the following:

1. Improving Canada's ability to address water challenges due to climate change and changing land-use.
2. Creating an aquatic habitat restoration economy
3. Reducing land-based run-off of nutrients and pollution in Canada's watersheds
4. Balancing hydroelectric development with improved river connectivity and flows

1. Improve Canada's ability to address water challenges caused by climate change and changing land-use.

Building a World Class Freshwater Monitoring Framework - ensuring a national water quality and quantity monitoring framework that is data sufficient, accessible and comprehensive:

Long-term watershed health can only be accomplished in conjunction with a strong national freshwater monitoring framework that is both open and accessible to all sectors of society including academia, the public, and the non-governmental agencies working on freshwater issues. To modernize freshwater management for the challenges of the 21st century, Canada needs to invest in its ongoing national monitoring system to track the state of freshwater as climate change and increased population put more and new pressures on this resource.

The GBC recommends:

- Providing dedicated, long-term monitoring funding for open and accessible data, a process that ensures that availability challenges are resolved, and to reduce the loss of data over time due to programs being disrupted or discontinued.
- Further standardizing data collection and reporting (especially at the local level) via hubs, and mitigating hurdles to allow for greater local-regional-national data integration and comparison
- Extending coverage of water monitoring catchments to better understand historically underrepresented, and in some cases high-risk, areas (e.g. Saskatchewan, Nunavut, Northern Ontario, Northern Quebec); and
- Facilitating information sharing between data collection staff and watershed monitoring staff.

\$20 million per year over five years

2. Create an aquatic habitat restoration economy

Through strategic investments in departmental capacity, policy and program development, and seed funding programs, the federal government could leverage significant private dollars to greatly improve aquatic

²⁷ WWF-Canada Watersheds Report 2017

²⁸ Lynch, A.J, et. al. 2016. Climate Change Effects on North American Inland Fish Populations and Assemblages. FISHERIES Volume: 41 Issue: 7 Pages: 346-361 Special Issue: SI

habitat, grow local economies, achieve biodiversity outcomes, and facilitate the Fisheries Act authorization and permitting process.

A federal government investment is needed to:

- Support the expanded use of habitat banking under the Fisheries Act
- Implement an offset fee program for permitting low-risk works under the forthcoming prescribed works regulations
- In partnership with civil society, build a national aquatic habitat restoration strategy and regional habitat restoration hubs
- Create a seed funding program for inland water habitat protection and restoration

The conversion or destruction of ecosystems for farmland, residential areas or other build environments, and forestry permanently removes areas that fish, waterfowl and other wildlife use for breeding, feeding and migrating, and can increase the likelihood of downstream pollution and flooding. More than half of Canadian sub-watersheds have suffered significant habitat loss. Very high habitat loss has been recorded in 17 sub-watersheds, high loss has been recorded in 27, and 49 have experienced moderate loss (Watershed reports, 2017). More than 72% of all our wetlands - many of which are critical fish nurseries - have been lost, and that number soars to over 90% in certain highly populated regions of the country. The Great Lakes region, Lake Erie's watershed in particular, has witnessed significant loss resulting in water quality decline. In turn, this has resulting in toxic algal bloom outbreaks that have forced some US communities to temporarily cease using it as a drinking water source.

An Investment in large scale restoration is critical to addressing threats to our freshwater, reducing human health risks and in meeting Canada's climate targets.

The Green Budget Coalition therefore recommends Budget 2019 include the following investments and new revenue streams:

- Funding of \$10 million in year 1, with an incremental increase of \$5 million per year over the remaining four years, to build a national aquatic habitat restoration strategy and regional habitat restoration hubs, and create a seed funding program for inland water habitat protection and restoration.
- Funding of \$2 million per year for 5 years to train DFO staff in habitat banking, establish industry standards and practices for habitat banking, engage industry and non-government groups in habitat bank pilot projects.
- Creating estimated revenue of \$5 million per year on-going by implementing an offset fee program for the approximately 1,000 projects that currently receive a Letter of Advice for projects that cause a small area of habitat destruction.

Suggested total investment: \$110 million over 5 years

Estimated revenue to offset cost: \$5 million per year on-going

3. Reduce land-based runoff of pollutants and nutrients

The federal role in alleviating land based run-off of pollutants and nutrients includes: implementation of international agreements where applicable; facilitating inter-jurisdictional co-operation; conducting research and gathering baseline data; monitoring and analyzing trends; exchanging information; and consulting with and reporting to the public on how these issues are being addressed. Analyze the areas of highest pollutant loading to these fresh waters and assist with implementation of best management practices and other strategies on the landscape to reduce pollutant volumes.

Pollution is a serious concern in 60 of Canada's 167 subwatersheds. In more urban areas, point-source pollution from municipalities and industry, for example, is the primary culprit. In more rural and agricultural regions, agricultural contamination from phosphorus, nitrogen and pesticides are the main drivers. Pipeline incidents, and incidents from the transportation of dangerous goods, are also affecting freshwater ecosystems. Pollution can change the ecology and chemistry of rivers, sometimes in immediate and obvious ways (by killing large numbers of fish or making the water unfit to drink), and in other cases through the buildup of toxic substances in an ecosystem over a long period of time. The National Panel on Contaminants in Wastewater in 2018 recommended that holistic watershed approaches and source control is an important component of protecting human and aquatic health since not all contaminants are effectively or efficiently treated by water treatment plants.²⁹

Recommended investment: \$100 million per year over five years

Complementary to this funding is the Green Budget Coalition's recommendation to re-invest in the National Pesticide Monitoring and Surveillance Network, which would provide additional resources to help reduce land-based runoff of pollutants and nutrients. (*See Toxics recommendation, earlier in this document.*)

4. Balance hydroelectric development with improved river connectivity

Energy development is critical to the health Canada's economy, as is water. In fact, water is the basis for all economic activity - no industry can operate without directly or indirectly using some amount of water. Water can also be responsible for significant economic losses in the form of droughts and flooding. Yet, Canadians have a very poor understanding of the role of water in our economy. A 2011 estimate determined the contribution of water to the Canadian economy was about \$7.8 billion to \$22.9 billion; however, the authors of this assessment indicate that number is likely significantly lower than the actual contribution.

The urgent need to move away from carbon-intensive fossil-fuels has rapidly increased the demand for green, renewable sources of energy. Due to our relative wealth of freshwater resources but at-risk watersheds, Canada has a unique opportunity to provide hydropower to meet this energy demand in North America. Renewable energy must be developed in such a way as to ensure Canada's watersheds aren't further threatened or where significant free-flowing river systems are intact, we must maintain:

1. Prioritization of implementation of environmental flow
2. Protect and/or restore free-flowing rivers

It is a promising step to see that environmental flow considerations have made it into the amendments of the Fisheries Act. Through the designation of project lists in the new Impact Assessment Act The major projects list should include all projects which will alter the volume and timing of available water beyond a threshold which interferes with the Environmental Flow Needs of the aquatic ecosystem. To begin implementation at a regulatory level, the GBC recommends:

Investment \$5 million over the next three years

²⁹ Mavinic, Don et al, National Expert Panel Report, Canada's Challenges and Opportunities to Address Contaminants in Wastewater,, Canadian Water Network, 2018 <http://www.cwn-rce.ca/focus-areas/blue-cities/national-project-on-contaminants-in-wastewater/>

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COMPLEMENTARY RECOMMENDATIONS



Committing to the Health and Sustainability of Canada's Oceans

In consideration of the UN Convention on Biological Diversity's Aichi Target 11, aimed to establish marine protection in at least 10% of the world's oceans by 2020, and the IUCN World Conservation Congress 2017 motion encouraging additional protection by 2030, Canada must continue to invest in conserving coastal and marine environments by establishing representative marine protected area (MPA) networks in all marine ecoregions. To effectively meet marine biodiversity conservation needs, including the rebuilding and recovery of at-risk species, Canada must continue to engage in strategies that are inclusive of indigenous communities, relevant agencies, and other marine stakeholders to maintain healthy oceans and sustainable marine economies. Augmenting conservation efforts through supportive governance measures is also a must, and should include improved efforts to reduce the ecological harm caused by open-net pen aquaculture on wild fish stocks. Our 2019 budget recommendations include:

1. \$70 million per year for five years to support the establishment of MPA networks in all of Canada's marine ecoregions.

We commend the Canadian Government on work done to designate MPAs in all three oceans bordering Canada. Continued efforts are still necessary to complete MPA networks in all ecoregions. This effort requires a high level of consultation and engagement. Enhanced capacity of staff, travel, and meeting budgets is needed to facilitate effective and timely consultation processes and the formal designation of effective and durable protection measures. A leveraged fund to engage citizens, particularly indigenous communities in Canada's work to protect our oceans would also be needed to enhance stewardship, management and enforcement in MPAs through engagement of Canadians from coast to coast to coast.

2. \$20 million per year over 5 years to rebuild and enhance stock assessment capacity, particularly for data-poor and at-risk fish stocks.

Since 1970, an estimated 52% of the biomass of Canada's fisheries has disappeared, and successive governments have failed to bring in adequate measures to rebuild stocks upon which so many coastal and indigenous communities rely. Increased funding would align Canada with leading progressive fishing nations and international fisheries law, and help drive progress on ensuring recovery of threatened/ degraded stocks and on the long-term sustainability of fisheries and the populations of fish upon which they depend.

3. \$15 million per year over five years to increase environmental research in aquaculture, as well as monitoring, enforcement, and alternative practices including land-based production for aquaculture operations.

The Spring 2018 Auditor General Report found DFO is not adequately managing the risks associated with salmon aquaculture consistent with its mandate to protect wild fish.³⁰ Open net pens in the ocean have effects on wild fish, benthic habitat, and the larger ocean ecosystem which must be mitigated. Support is necessary for enhanced enforcement and compliance, research on environmental effects-particularly in regard to disease management. Increased investment in alternative species production and farming practices, with a specific focus on development of land based systems is also a must for the health of our oceans.

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³⁰ The Commissioner on Environment and Sustainable Development (CESD) report on 'Report 1-Salmon Farming' http://www.oag-bvg.gc.ca/internet/English/att_e_42999.html

Renewed Commitment to Canada's Birds

The State of North America's Birds 2016 report shows that one third of North America's birds, 1154 species--including many Canadian species--need urgent conservation action to prevent extinction. The causes of bird population declines are complex and numerous, often compounding one another, and, for many Canadian bird species, originate both within and outside of our borders. Unlike other Canadian wildlife, birds are migratory; spending a significant portion of their life cycle elsewhere, as far away as South America. Thus international cooperation and conservation, across the whole of their ranges, are needed to ensure that these species remain part of our Canadian ecosystems.

Birds contribute enormously to our country's biodiversity; 690 species of birds occur in Canada. Their presence demonstrably increases human health and well-being and birds are deeply woven into our art and culture, as well as our economy. More importantly, birds are critical components of our ecosystems, providing irreplaceable services such as pollination, seed dispersal, and pest control, upon which humans, including our natural resource industries, rely. The importance of birds to Canadians was first recognized more than one hundred years ago, with the signing of the Migratory Bird Convention Act.

Under this Act, the Government of Canada has a legal responsibility to manage and protect Canada's birds. As a leading member of the North American Bird Conservation Initiative, the Government clearly recognizes the seriousness of the problem, however increased funding and immediate action are also needed to address the current crisis. The \$1.3 billion for conservation, announced in 2018, will undoubtedly have positive impacts for some bird species, but it will not address the many factors causing the most severe declines in our bird populations. Protecting, managing and connecting some of the most vulnerable habitats, including oceans, grasslands, tropical forests and wetlands, is essential to conserving Canada's bird populations, as is addressing human-related causes of mortality such as window strikes, toxics, pesticides, marine pollution and cats. Further these threats must be addressed both within and beyond our borders. We recommend that the Government of Canada renew

its Canadian and international commitment to birds with **\$25 million per year over the next four years to:**

- Support conservation of Canada's birds and their habitats beyond our borders;
- Revise and strengthen the Migratory Bird Convention Act to address current conservation issues, including incidental take;
- Increase capacity to adaptively manage bird populations;
- Address human-related threats outside scope of protected areas funding
- Meet North American Bird Conservation Initiative commitment to implement an all-bird conservation approach; and
- "Keep common birds common" including reinstating the Habitat Stewardship Program's Prevention Stream Funding.

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Carbon Pricing

A pan-Canadian price on carbon will be a key policy to enable Canada to reach its 2030 carbon reduction commitment under the Paris climate agreement. While complementary climate policies will be needed, a polluter pays policy that rises gradually over time will send the right signals to businesses, governments, and households. As such, the federal carbon pricing backstop must be put into place so that a \$20/tonne carbon price will be applied on January 1st, 2019. The federal government must also ensure that all provinces meet or exceed the federal backstop for provincial systems to apply.

It is of concern that the proposed carbon pricing backstop allows provinces to apply an Output Based Pricing System (OBPS) to all industrial sectors. Rather than applying the OBPS so broadly, it should be more targeted, applying only to sectors where there is evidence that carbon leakage will result from sectors facing the full carbon price.

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International Climate Financing

Canada and other industrialized countries committed in the Paris Agreement to mobilizing USD 100 billion every year to assist developing countries adapt to climate change impacts and undertake low-carbon development. Using different methodologies, Canada's fair share of the total, based on its wealth and historic responsibility for the problem of climate change, is 3-4%. That totals USD 3-4 billion for every year from 2020 to 2025 for Canada.

The CAN\$2.65 billion that Canada committed in November 2015 is a good start, but the CAN\$800 million that is earmarked for 2020 falls well short of our fair share. The federal government needs to scale up its efforts and provide certainty on funding in and beyond 2020 by indicating how it intends to mobilize its full, fair share. One promising option is to generate this funding through a levy on bunker fuels used in international aviation and/or marine shipping.

Recommended Investment (while considering new revenue sources):

\$2 billion between now and 2020/2021, inclusive (so that Canada can deliver \$2.8B in 2020/2021),

\$2.8-3.7 billion per year from 2021/2022 to 2025/2026

For more details, please see the GBC's feature recommendation for Budget 2018 on [International Climate Financing](#).

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Supporting the Transition to Cleaner Ship Fuels in the Canadian Arctic

Heavy Fuel Oil (HFO) is a dirty and polluting fossil fuel that powers ships throughout the global ocean - accounting for 80% of marine fuel used worldwide. HFO, already banned in Antarctica, if spilled in cold polar waters, breaks down slowly, persisting for weeks and often longer. The lack of equipment and spill response capacity in the Arctic and for ice infested waters, coupled with its persistence makes it almost impossible to clean up. An HFO spill would have long-term devastating effects on Arctic indigenous communities, livelihoods and the marine ecosystems they depend upon. Communities rely heavily on country foods, and due to slower reproductive cycles of many Arctic species, smaller food webs and stressors from climate change and sea ice loss, species and in turn communities are more vulnerable to impacts from spills.

HFO is also a greater source of harmful emissions of air pollutants, such as sulphur oxide, and particulate matter, including black carbon, than alternative fuels such as distillate fuel and liquefied natural gas. When emitted and deposited on Arctic snow or ice, the climate warming effect of black carbon is up to five times more than when emitted at lower latitudes, such as in the tropics.

To eliminate HFO use and carriage in Canadian Arctic shipping, a fuel transition fund is needed to support the phase out of polluting HFO to lighter less polluting fuels in the shipping industry. The community re-supply sector in the Canadian Arctic would have to absorb and most likely pass on to community members the increased costs associated with using the more expensive less polluting fuels, and this federal fund would help ease that burden and manage the transition. It's estimated that 70% of families in Nunavut are food insecure. By supporting the transition to cleaner fuels, this new fund would help reduce the risks of spills and their impact on the marine environment which communities depend on for food, and ensures food prices won't increase.

Recommended investment: \$15 million over 5 years, starting in 2021 when an international ban on HFO is in place.

To further incentivize fuel switching away from the world's dirtiest and most polluting ship fuel, HFO, a renewable energy innovation subsidy is needed. Funding the design, retrofitting and testing of emerging technologies such as wind-assist would not only save on fuel costs but also reduce GHGs and emission pollutants. The subsidy could kick start the widespread spread application of these new technologies and contribute to decarbonizing the global shipping sector.

Recommended Investment:
\$5 million over 3 years, starting in 2020.

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Zero Emission Vehicles

Transportation accounts for about a quarter of Canada's greenhouse gas emissions, making it the second-highest source, slightly behind the oil and gas industry. Zero Emissions Vehicles (ZEV) will play a critical role in reducing emissions from the transportation sector and supporting Canada in meeting its Paris commitments. ZEV mandates, which require a certain percentage of vehicle sales to be zero emissions, have been used in California, 10 other states and Québec to grow ZEV market share. Research by the Simon Fraser University Sustainable Transportation Action Research Team demonstrates that the most cost-effective strategy for Canada to meet the Clean Energy Ministerial 30@30 targets is a ZEV mandate in conjunction with an incentive of \$6,000 per ZEV for two years. In the absence of a mandate, the \$6,000 incentive would need to be extended until 2030 to meet the target. The Green Budget Coalition recommends a ZEV mandate combined with a two year, Canada-wide ZEV incentive of \$6,000 per vehicle.

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Community Ownership of Clean Energy

Canada and the world are beginning a major transition to an economy based on renewable energy. Community ownership -- by co-operatives, Indigenous communities, municipal utilities, community development funds and other forms of social enterprise -- can add to Canada's renewable energy portfolio and create many additional benefits in this new clean energy economy because it keeps the control and benefits of energy production and use local.

Investment by ordinary citizens in community-owned energy in Canada and around the world has shown that there is a huge opportunity to mobilize local savings for investment in clean energy. This will lead to secure local jobs, workplace democracy, local resiliency, new skills, agricultural opportunities, and fixed pricing for energy. Local ownership also leads to greater awareness and support for climate change initiatives.

The federal government can play a key role in leveraging and unlocking this community capital by providing loan guarantees, debt financing, tax credits, and other support for community ownership of clean energy through existing small business and economic development programs such as the Community Futures Development Corporations.

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Healthy Homes: Labeling energy use & radon levels

Mandatory labelling of building energy use and radon levels at time of listing for sale/resale will increase the percentage of homebuyers that make energy efficiency upgrades in their homes, reduce the chances of lung cancer in Canadians, and make Canadian homes healthier. Energy efficiency retrofits stimulated by labeling could reduce Canada's greenhouse gas emissions by up to 12 MT. Energy efficiency homes also have healthier air quality. As such, efforts must be made to reduce Canadians' exposure to radon, as it is the leading cause of non-smoking induced lung cancer. This initiative will increase transparency and inform Canadian consumers about their choices when buying a home. Labelling will not deter buyers from buying homes or change the housing market fundamentally, however it will increase the number of energy upgrades in households across Canada.

Mandatory labelling requires legislation from the provincial level, and buy-in from the real-estate brokers and agents. All provinces, except Saskatchewan, have committed to introducing mandatory labelling of building performance, through the Pan-Canadian Framework. As of 2018, no province has adopted mandatory labeling legislation. We recommend that the 2019 Federal Budget include funding that:

- Supports capacity building for real estate agents and Realtors to increase energy literacy, comprehension of EnerGuide and Radon labeling, and knowledge about home upgrade financing and rebate programs;
- Convenes stakeholders representing provincial government, real estate market, environmental non-governmental organizations, building inspectors, building industry, social justice, and educational institutions to promote the importance and practicality of energy and radon labeling;

- Supports capacity building in energy efficiency and building science for building trades people and building inspectors.

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First Nations Drinking Water & Wastewater Infrastructure

While investments have been announced in previous budgets for First Nations water and wastewater, the GBC recommends that a permanent sustained funding envelope be established to provide predictability to First Nations and allow for ongoing and long terms planning, construction, upgrading, retro-fitting, maintenance of those systems, along with training and operational upgrades in the amount of \$415 million per year. Although the federal [Clean Water and Wastewater Fund](#) is designed to accelerate short-term investments in communities, while also rehabilitating and modernizing drinking water, wastewater and storm water infrastructure, as well as to assist in planning for additional facilities and upgrades to existing systems, an on-going line in the budget is necessary. Indigenous-led solutions for provision of safe drinking water and wastewater in First Nations communities are critical, and they must be an integral component of budgeted solutions. The federal investments should support the AFN's National Water Declaration.³¹

Please see more detailed recommendation online at www.greenbudget.ca/2019FNs_water.

Contact

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A National Scientific and Data Management Strategy for Canada

An integrated and open data platform

Federal leadership is urgently needed to move Canada towards an updated, integrated and complete scientific data collection and management strategy in order to effectively address Canada's growing environmental challenges. These include: supporting the transition to a clean and low-carbon economy, informing implementation plans for Canada's biodiversity and protected area targets, supporting proposed legislative reforms to federal environmental and regulatory processes, informing the development of sustainable and climate resilient agriculture; managing our freshwater and saltwater fisheries; protecting our freshwater resources; and reducing environmental risks from toxic chemicals

1. Updated National Ecosystem Data

Investment Required:

For 2018/19: \$20 million, plus \$80 million over 4 years starting in 2019/2020
Ongoing from 2024: \$25 million per year

Through Natural Resources Canada's Federal Geospatial platform, the Government of Canada has built an important data management tool that aggregates the country's existing core data layers into a national geo-database. However these foundational base layers of this data are badly out dated, sometimes even by decades. These datasets that underpin much of Canada's land use, conservation and resource management decisions were built using low-resolution aerial photography in the pre-computer age. While much digitization of this old data has been undertaken, many core layers of critical geographical data are no longer current. As a result, our land use and management decisions are being made with outdated or incomplete information.

In 2019, Canada must embark down a path that will see major investments in the development of a new

³¹ <http://www.afn.ca/uploads/files/water/afn-water-declaration.pdf>

digital environmental data strategy. If done properly, this will enable the Government of Canada to gather, manage, group and supply relevant and updated geo-spatial data so as to best inform both science and evidence-based decision making thus allowing decision-makers to better manage the risks and impacts associated with land-use change in all regions of the country.

Core to this is to ensure that these new data tools and products remain open and accessible, that we create a more sustained and regular approach to data acquisition and management, and that we clarify the roles and responsibilities of the various external stakeholders and public sector participants in future data collection and management decisions.

The Green Budget Coalition therefore recommends a new federal investment in updated foundational geographic and landscape feature data be made.

The intended outcomes are to establish new baseline data and to generate modern elevation, soil and biodiversity datasets that would be open and accessible.

For 2019-2020:

- a) Investments in High Resolution Optical Data upgrades - \$5M
- b) Purchased RADARSAT Data to inform updated datasets - \$20M
- c) Purchased LIDAR Data to construct 3D elevation geodatabase models - \$20M

For 2020-2024

- a) Investments in High Resolution Optical Data upgrades - \$5M/year
- b) Purchased RADARSAT Data to inform updated datasets - \$20M/year
- c) Purchased LIDAR Data to construct 3D elevation geodatabase models - \$20M/year

Total Investment: \$225 million in updated data investments for 2019-2024

2. A New Public Private Advisory Panel on Sharing Environmental Data and Science
Investment required: 2019/2020: \$5 million

Similar to Statistics Canada's Public Accounts Advisory Committee, the GBC recommends establishing a newly constituted NRCan-led public and private expert advisory panel to make recommendations on the collection, exchange and use of environmental data and information across the federal government. In addition, this body would have a mandate to provide strategic advice on data collection and management issues including: barriers to environmental data collection; exchange and use issues across various data collectors and end-users, jurisdictions and sectors; identifying data gaps and needs; and assessing current information sharing systems in Canada and abroad. Lastly, it would publish a report with recommendations to government on actions and requirements that would help close Canada's environmental information gap.

Given the complexities and potential benefits of developing and implementing this initiative, the GBC recommends an initial \$5 million/3 years investment to establish and support an expert panel coordinated by officials from the Canada Centre for Earth Observation at the Department of Natural Resources Canada.

Total required investment (parts 1 & 2): \$230 million (2019-2024)

Contact

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Regarding Protected Areas, Species at Risk, & Environmental Laws

Budget 2018 includes an unprecedented federal investment of \$1.3 billion over five years to create and manage protected areas and recover species at risk, as well as \$1 billion over five years to implement environmental laws.

The Green Budget Coalition welcomes this commitment to nature conservation and is ready to work with the federal government to maximize the impact of this investment.

The allocation of these funds will be critical to delivering on Canada's commitment to protect at least 17% of our land and 10% of our ocean by 2020, and to create effective networks of protected areas that will sustain nature in the long run. It will also be critical to rebuild public trust in federal processes to regulate development projects to achieve environmental sustainability.

Protected Areas & Species at Risk

The GBC urges the government to allocate most of the \$1.3 billion in nature funding to partnerships, supporting provincial, territorial and Indigenous governments, and other partners who are best placed to significantly expand protection of Canada's land and freshwater ecosystems, and to primarily allocate the rest to support the expansion and more effective management of federal protected area network. The governance and details of the cost-shared model (the proposed Nature Fund) is of particular interest. For more details, please see the GBC's detailed recommendation for Budget 2018 on Delivering on Canada's Commitment to Protect our Land, Inland Waters, and Oceans, at <http://greenbudget.ca/wp-content/uploads/2017/09/GBC-Land-Water-Conservation-2018.pdf>.

Environmental Laws

The GBC supports the allocation of the \$1 billion for environmental law implementation to: support the new impact assessment system and Canadian Energy Regulator; increase federal scientific capacity in federal departments and agencies; implement changes required to protect water, fish and navigation; undertake regional and strategic assessments; and increase Indigenous and public participation.

The GBC has further proposals, especially with respect to increasing Indigenous and public participation in environmental law implementation, that it wishes to share as Treasury Board submissions in particular are developed.

Conclusion

Overall, the Green Budget Coalition is strongly interested in continuing the constructive dialogue we have had with Ministers and officials over the past year so that the impact of these investments can be maximized.

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Summary Table - Feature Recommendations

Lead Departments and Costs (and Savings) Associated with the GBC's Recommendations for Budget 2019

(in millions of dollars; negative figures represent savings or revenues)

Recommendation <i>Sub-Recommendation</i>	Likely Lead Department(s)	Costs/Savings	2019-20	2020-21	2021-22	2022-23	2023-24	ongoing	(end-year)
Tackling toxics									
Next generation chemicals management									
Update methodologies	ECCC, HC		12.5	12.5					
Ongoing assessment & regulatory activities	ECCC, HC				100	100	100	100	
Enforcement of CEPA, 1999 and regulations	ECCC		50	100	100	100	100	100	
PMRA - Increased capacity	HC		50	100	100	100	100	100	
National Pesticides Monitoring & Surveillance Network	ECCC		2	2	2	2	2		
<i>Totals - for Tackling Toxics</i>			114.5	214.5	302	302	302	300	
Fossil Fuel Subsidy Phase-Out									
Disclose costs of spending & tax deductions	Finance								
Define "inefficient" fossil fuel subsidies	Finance, NRCan, ECCC								
Volunteer peer review	Finance, NRCan, ECCC								
Commit to not introduce new FF subsidies	Finance		-	-	-	-	-	-	-
Sustainable Agriculture									
<i>Agri-Environmental Programs</i>									
Impact Assessment on Biodiversity	AAFC, ECCC		2	2	2	2	2		
Biodiversity Indicators/Metrics	AAFC, ECCC		4	4	4	4	4		
National Land Management & Stewardship Program	AAFC, ECCC		50	50	50	50	50		
National Perennial Cover Incentive	AAFC		24	24	24	24	24		
National Synthetic Pesticide Reduction Strategy	AAFC, ECCC, HC		12	12	12	12	12		
Pollinator Conservation Initiative	AAFC, ECCC		8	8	8	8	8		
Pollinator Protection Program	AAFC, ECCC		4	4	4	4	4		
Safe Harbour Program	AAFC, ECCC		5	5	5	5	5		
<i>R&D in environmental sustainable agriculture</i>	<i>AAFC, ECCC</i>			22	22	22	22		
On-Farm Participatory R&D for Seeds			10						
R&D in Agro-Ecological Climate Change Mitigation & Adaptation Practices			12						
<i>Food Waste Prevention Program</i>	<i>AAFC, ECCC, HC</i>		4.5	4.5	3	3	3		
<i>Totals - for Sustainable Agriculture</i>			135.5	135.5	134	134	134		
Freshwater Management									
Addressing climate change & land use-related water challenges	ECCC		20	20	20	20	20		
Aquatic habitat restoration economy									
Build national strategy & regional hubs	DFO, ECCC		10	15	20	25	30		
Train DFO staff, establish industry practices, engagement	DFO, ECCC		2	2	2	2	2		
Offset fee program revenue	DFO, ECCC		-5	-5	-5	-5	-5	-5	
Reducing land-based run-off of nutrients & pollution	AAFC, ECCC		100	100	100	100	100		
Balancing hydro connectivity with river connectivity & flow	NRCan, DFO		1.7	1.7	1.7				
<i>Totals - for Freshwater Management</i>			128.7	133.7	138.7	142	147	-5	

For department acronyms, see page 41

Summary Table - Complementary Recommendations

Lead Departments and Costs (and Savings) Associated with the GBC's Recommendations for Budget 2019

(in millions of dollars; negative figures represent savings or revenues)

Recommendation <i>Sub-Recommendation</i>	Likely Lead Department(s)	Notes on Costs/Savings	2019-20	2020-21	2021-22	2022-23	2023-24	ongoing	(end-year)
<i>Nature Conservation</i>									
Canada's Oceans									
Establish MPA networks	DFO, PC, ECCC		70	70	70	70	70		
Rebuild & enhance stock assessment capacity	DFO		20	20	20	20	20		
Aquaculture - increasing environmental research, monitoring, enforcement & alternative practices	DFO		15	15	15	15	15		
Canada's Birds	ECCC		25	25	25	25			
<i>Climate Change and Energy Sustainability</i>									
Carbon Pricing	ECCC	Revenues slated to be returned to provincial and territorial governments							
International Climate Financing									
Financing	ECCC, GAC		2,000 (total) over 2019-2021		2,800 - 3,700 per year over 2021-2025				
New Revenue sources	Finance, ECCC, GAC		up to -2,000 (total revenues) over 2019-2021		up to -3,700 (revenues) per year over 2021-2025				
Cleaner Ship Fuels in Canadian Arctic									
Fuel Transition Fund	TC, ECCC +INAC, NRCan				5	5	5		
Renewable energy innovation subsidy	TC, ECCC +INAC, NRCan			1.7	1.7	1.7			
Zero Emission Vehicles	TC, NRCan + ECCC, ISED, InfC		573 to 1,900 (total) over 2019-2021						
Community Ownership of Clean Energy	NRCan, Finance, ISED	Cost would depend on chosen policy option(s); some have very little cost.							
Healthy Homes: Labeling Energy Use & Radon	NRCan, HC, CMHC, ESDC	Details to follow....							
<i>Cross-Cutting Recommendations</i>									
First Nations Water Infrastructure	IS, INAC, InfC		415	415	415	415	415	415	415
Scientific & Data Management Strategy									
National Ecosystem Data	NRCan, StatCan, AAFC, ECCC, DFO, HC		45	45	45	45	45		
Consortium on sharing environmental data & science			5						

Departmental Acronyms:

AAFC: Agriculture and Agri-Food Canada
 CMHC: Canada Mortgage and Housing Corporation
 DFO: Fisheries and Oceans Canada
 ECCC: Environment and Climate Change Canada
 ESDC: Employment and Social Development Canada
 Finance: Finance Canada
 GAC: Global Affairs Canada
 HC: Health Canada

INAC: Indigenous and Northern Affairs Canada
 IS: Indigenous Services
 InfC: Infrastructure Canada
 ISED: Innovation, Science and Economic Development Canada
 NRCan: Natural Resources Canada
 PC: Parks Canada
 PMRA: Pesticide Management Regulatory Agency
 PS: Public Safety
 StatCan: Statistics Canada



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Co-Chair: Lisa Gue, Senior Researcher and Analyst - Science and Policy, David Suzuki Foundation
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Working Group Leads:

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