Bio-fiscal reform: Aligning federal subsidies in natural resource sectors with Canada's biodiversity commitments

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Résumé

Le Canada est signataire du Cadre mondial de la biodiversité (CMB) de Kunming à Montréal. Adopté en décembre 2022, ce plan préconise des mesures urgentes qui visent à enrayer et inverser la perte de biodiversité. Dans le cadre des objectifs 18 et 19 du CMB, les pays devraient revoir et réformer les subventions nuisibles à la biodiversité et augmenter considérablement les ressources pour la conservation d'ici 2030. La Stratégie pour la nature 2030 du Canada intègre ces engagements du CMB, soulignant ainsi l'importance d'aligner les politiques fédérales et les dépenses publiques sur les objectifs mondiaux en matière de biodiversité.

Ce rapport propose un cadre pratique d'évaluation des subventions et l'applique aux subventions fédérales dans les secteurs de l'agriculture, des pêches et de l'aquaculture, de la foresterie et des mines du Canada entre 2021 et 2026. Il décrit l'ampleur des subventions et cerne les possibilités de réforme prioritaires pour aider le Canada à atteindre ses objectifs budgétaires et environnementaux.

La réforme des subventions néfastes dans le secteur canadien des ressources naturelles est une étape cruciale pour harmoniser les politiques et les dépenses publiques avec les résultats en matière de biodiversité. Ce rapport lance le processus en présentant des conclusions et des recommandations visant à aider les gouvernements à prendre des décisions relatives aux subventions qui établissent un meilleur équilibre entre les objectifs environnementaux et économiques.

Présentation du cadre d'évaluation des subventions

Nous avons élaboré un cadre en cinq étapes que les gouvernements et les analystes indépendants peuvent utiliser pour évaluer les subventions et les aligner sur les objectifs budgétaires et environnementaux du Canada :

1. **Cerner les secteurs prioritaires.** Analyser les secteurs économiques qui contribuent le plus à la perte de biodiversité et à d'autres dommages environnementaux afin de déterminer où le soutien gouvernemental pourrait devoir être revu.
2. **Identifier les subventions et évaluer les impacts budgétaires.** Répertorier les subventions dans chaque secteur et estimer leurs coûts budgétaires, en s'appuyant sur les budgets gouvernementaux, les documents de politique et les rapports de responsabilisation.
3. **Classer les subventions comme nuisibles ou bénéfiques pour l'environnement.** Évaluer si les subventions encouragent des pratiques non durables, promeuvent la protection de l'environnement ou créent des compromis environnementaux qui exigent un équilibre prudent.
4. **Évaluer et présélectionner les subventions pour les réformes prioritaires.** Évaluer les risques environnementaux, sociaux, culturels, financiers et de mise en œuvre afin d'identifier les objectifs de réforme les plus pratiques et les plus efficaces.

5. **Élaborer et mettre en œuvre un plan de réforme.** Élaborer un plan de réforme assorti d'un échéancier clair, d'une solide mobilisation des intervenants et des Autochtones et d'un suivi continu afin de veiller à ce que les réformes soient efficaces, inclusives et adaptatives.

Constats

1. **Les subventions fédérales sont très étalées.**

   Cent treize subventions ont été recensées dans les quatre secteurs, pour une valeur fiscale totale estimée à 13,2 milliards de dollars par année. L'agriculture représente 9,9 milliards de dollars par année, les pêches et l'aquaculture 1,8 milliard de dollars par année, les forêts 619 millions de dollars par année et les mines 908 millions de dollars par année.

2. **Les subventions bénéfiques pour l'environnement sont sous-financées.**

   Seules 27 des 113 subventions (24 %) ont été jugées bénéfiques pour l'environnement, ce qui ne représente que 14 % de l'incidence budgétaire totale. L'agriculture et l'exploitation minière en particulier affichent de faibles parts de subventions bénéfiques.

3. **Le potentiel de réforme est important.**

   Plusieurs importantes subventions devraient être réformées, notamment 4,6 milliards de dollars par année dans l'agriculture, 102 millions de dollars par année dans les pêches, 186 millions de dollars par année dans la foresterie et 776 millions de dollars par année dans l'exploitation minière.

Recommandations et calendrier

Afin de soutenir la Stratégie pour la nature 2030 du Canada et les engagements du CMB, nous recommandons une approche pratique par étapes :

- **Court terme (1 à 2 ans) :** Établir une structure de gouvernance officielle avec une reddition de comptes et des rapports clairs. Commencer par procéder à des évaluations rapides et s'attaquer aux réformes prioritaires à faible risque, en particulier les dépenses fiscales.
- **Moyen terme (2 à 4 ans) :** Élargir la portée de réformes plus complexes, élaborer des plans de transition sectoriels et approfondir la mobilisation des provinces, des gouvernements autochtones et des intervenants.
- **Long terme (4 à 6 ans) :** Créer un mécanisme permanent et interministériel pour l'évaluation et la réforme continues des subventions afin d'assurer une harmonisation continue avec les priorités environnementales et économiques en évolution.

Ce qui rend cette approche particulièrement efficace est sa reconnaissance du fait que différentes subventions nécessitent différentes stratégies de réforme. Les dépenses fiscales qui n'ont pas été évaluées pour leurs impacts environnementaux depuis des décennies offrent des possibilités immédiates, tandis que les programmes ayant d'importantes implications sociales ou financières peuvent nécessiter des approches plus nuancées qui préservent leurs fonctions essentielles tout en améliorant progressivement les résultats en matière de conservation.

Le cadre présenté dans ce rapport constitue un guide pratique pour la réforme des subventions qui concilie l'urgence de la conservation de la biodiversité et les réalités économiques et sociales complexes des secteurs des ressources naturelles.

Executive summary

Canada is a signatory to the Kunming-Montreal Global Biodiversity Framework (GBF), adopted in December 2022, which calls for urgent action to halt and reverse biodiversity loss. Under Targets 18 and 19, countries are expected to review and reform subsidies harmful to biodiversity and to significantly increase resources for conservation by 2030. Canada's 2030 Nature Strategy incorporates these GBF commitments, underscoring the importance of aligning federal policies and public spending with global biodiversity goals.

This report proposes a practical subsidy assessment framework and applies it to federal subsidies in Canada's agriculture, fisheries and aquaculture, forestry, and mining sectors between 2021 and 2026. It uncovers the scale of subsidies and identifies priority opportunities for reform to help Canada meet both fiscal and environmental goals.

Reforming harmful subsidies in Canada's natural resource sectors is a crucial step toward aligning public policy and spending with biodiversity outcomes. This report kickstarts that process by offering findings and recommendations to guide governments in making subsidy decisions that better balance environmental and economic objectives.

Framework overview

We developed a five-step framework that governments and independent analysts can use to assess and align subsidies with fiscal and environmental goals:

1. **Identify priority sectors.** Analyze which economic sectors contribute most to biodiversity loss and other environmental harms to determine where government support may need review.
2. **Identify subsidies and assess fiscal impacts.** Catalogue subsidies within each sector and estimate their fiscal costs, drawing on government budgets, policy documents, and accountability reports.
3. **Categorize subsidies as environmentally harmful or beneficial.** Evaluate whether subsidies drive unsustainable practices, promote environmental protection, or create environmental trade-offs that require careful balancing.
4. **Evaluate and shortlist subsidies for priority reform.** Assess environmental, social, cultural, financial, and implementation risks to identify the most practical and impactful reform targets.
5. **Develop and implement a reform plan.** Create a reform plan with clear timelines, robust stakeholder and Indigenous engagement, and ongoing monitoring to ensure reforms are effective, inclusive, and adaptive.

What we found

1. **Federal subsidies are widespread**

   One hundred and thirteen subsidies were identified across the four sectors, with a combined estimated fiscal value of $13.2 billion per year. Agriculture accounts for $9.9 billion per year, fisheries and aquaculture $1.8 billion per year, forestry $619 million per year, and mining $908 million per year.

2. **Environmentally beneficial subsidies are underfunded**

   Only 27 of the 113 subsidies (24 percent) were identified as environmentally beneficial, representing just 14 percent of total fiscal impact. Agriculture and mining in particular show low shares of beneficial subsidies.

3. **Reform potential is significant**

   Large shares of subsidies were identified as reform opportunities, including $4.6 billion per year in agriculture, $102 million/year in fisheries, $186 million/year in forestry, and $776 million per year in mining.

Recommendations and timeline

To support Canada's 2030 Nature Strategy and GBF commitments, we recommend a phased, practical approach:

1. **Short term (1-2 years):** Establish a formal governance structure with clear accountability and reporting. Begin with rapid assessments and address high-priority, low-risk reforms, particularly tax expenditures.
2. **Medium term (2-4 years):** Expand to more complex reforms, develop sector-specific transition plans, and deepen engagement with provinces, Indigenous governments, and stakeholders.
3. **Long term (4-6 years):** Create a permanent, cross-departmental mechanism for ongoing subsidy assessment and reform to ensure continued alignment with evolving environmental and economic priorities.

What makes this approach particularly effective is its recognition that different subsidies require different reform strategies. Tax expenditures that have not been assessed for their environmental impacts for decades offer immediate opportunities, while programs with significant social or financial implications may need more nuanced approaches that preserve their essential functions while incrementally improving conservation outcomes.

The framework presented in this report represents a practical guide to subsidy reform that seeks to balance nature conservation, fiscal prudence, and the complex economic and social realities of natural resource sectors.

The global push to reform environmentally harmful subsidies

The issue of government subsidies contributing to biodiversity loss is a significant global concern. These subsidies, particularly in agriculture, fisheries and aquaculture, forestry, and mining, incentivize greater environmental damage. Acknowledging the need for reform, a growing number of international and national agreements and plans have committed to identify and eliminate these subsidies or reorient them towards more sustainable production practices.

Since 2005, the Organisation for Economic Cooperation and Development (OECD) has been cataloguing environmentally harmful subsidies, which, globally, totalled an estimated 2.5 percent of global gross domestic product (GDP), or CDN $3.6 trillion,[1] with a third of this total going towards agriculture, fisheries and aquaculture, forestry, and mining sectors.[2] In 2010, the UN Convention on Biological Diversity included the removal of environmentally harmful subsidies in its 2010-2020 strategic plan, as part of Aichi Target 4. This target recognized the subsidies' contribution to biodiversity loss and aimed to address it. However, little progress was achieved by 2020.[3]

In May 2025, Canada's federal government re-affirmed its commitment to implementing the Convention on Biological Diversity's Kunming-Montreal Global Biodiversity Framework (GBF), finalized in December 2022, which calls for a major overhaul of financial flows and incentives to support biodiversity conservation. Notably, Target 18 commits signatories to identify harmful subsidies by 2025, and then eliminate, phase out, or reform these subsidies, with a target of reducing global subsidies by at least $500 billion annually by 2030, starting with the most harmful incentives. The target also commits nations to scaling up incentives for conservation and sustainable use of biodiversity.

In June 2024, the federal government released Canada's 2030 Nature Strategy, which affirms the country's commitment to identify and then phase out or reform subsidies that contribute to biodiversity loss, consistent with Target 18 of the Global Biodiversity Framework.[4] This strategy commits the federal government to identify federal incentives adversely affecting biodiversity by 2025 and, by 2030, to "substantially and progressively reduce the value of incentives and subsidies with harmful impacts on biodiversity, starting with the most harmful, while scaling up positive incentives for the conservation and

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[1] All dollar values are expressed in nominal Canadian dollars.

[2] Doug Kopolow and Ronald Steinblik, *Protecting Nature by Reforming Environmentally Harmful Subsidies: An Update,* Earth Track, 2024, https://www.earthtrack.net/sites/default/files/documents/ehs_report_september-2024-update_final.pdf; Alan Matthews and Katia Karousakis, "Identifying and assessing subsidies and other incentives harmful to biodiversity: A comparative review of existing national-level assessments and insights for good practice," *OECD Environment Working Papers*, No. 206, OECD Publishing, Paris, 2022, https://doi.org/10.1787/3e9118d3-en.

[3] Braulio F. S. Dias, *The Slow but Steady Progress in the Implementation of the Biodiversity Agenda*, IUCN, 2020, https://www.iucn.org/news/world-commission-environmental-law/202007/slow-steady-progress-implementation-biodiversity-agenda.

[4] Environment and Climate Change Canada, *Canada's 2030 Nature Strategy: Halting and Reversing Biodiversity Loss in Canada,* 2024, https://www.canada.ca/en/environment-climate-change/services/biodiversity/2030-nature-strategy.html.

sustainable use of biodiversity."[5] The commitments to address subsidies in Canada's 2030 Nature Strategy align with similar commitments made through the G7 2030 Nature Compact[6] and the Leaders' Pledge for Nature,[7] aiming to identify subsidies with negative impacts on nature and reform them into nature-positive incentives.[8] Additionally, the strategy pledges to dramatically increase investment to reverse biodiversity loss.[9]

The new federal government has reiterated these commitments in its election platform and the Speech from the Throne, promising to protect 30 percent of Canada's lands and 30 percent of its waters by 2030. The government has pledged to protect more of Canada's nature than ever before through the creation of new national parks, urban parks, marine protected areas, and other conservation initiatives.

Subsidy reform represents a significant opportunity to enhance biodiversity funding. As a critical first step to meeting its commitment to initiate subsidy reform and boost biodiversity financing, Canada can assess subsidies harmful to biodiversity and then prioritize the most harmful for reform.

This paper aids Canada in its commitment to reform environmentally harmful subsidies in five ways. Specifically, we:

1. **Deliver a practical subsidy assessment framework**
   We present a clear, step-by-step framework grounded in international best practice to help governments systematically identify, evaluate, and reform environmentally harmful subsidies. This framework can guide both immediate actions and long-term, ongoing reviews.
2. **Map subsidies and estimate fiscal impacts**
   We offer a detailed inventory of federal subsidies across four key sectors, namely agriculture, fisheries and aquaculture, forestry, and mining, along with estimated fiscal costs, where available. This helps clarify the scale of public spending and supports more informed decision making.[10]
3. **Identify environmentally harmful and beneficial subsidies**
   The report highlights subsidies likely to harm biodiversity and natural systems, while also identifying those that deliver positive environmental outcomes. By making these distinctions

[5] Environment and Climate Change Canada, *Canada's 2030 Nature Strategy*.

[6] *G7 2030 Nature Compact,* 2021, https://www.international.gc.ca/world-monde/international_relations-relations_internationales/g7/documents/2021-06-13-nature_compact-nature_horizon-2030.aspx?lang=eng.

[7] *Leaders' Pledge for Nature: United to Reverse Biodiversity Loss by 2030 for Sustainable Development,* 2020, https://www.leaderspledgefornature.org/ .

[8] The World Trade Organization's Fossil Fuel Subsidy Reform Initiative is exploring the use of harm as a prioritization tool, evaluating both the size of a subsidy and the damage per unit of subsidy. This approach moves beyond focusing solely on damage intensity, which can overlook the substantial impact of high-volume subsidies. See Peter Wooders, *Fossil fuel subsidy reform: Options for inclusive collective action at the World Trade Organization*, Forum on Trade, Environment, & the SDGs (TESS), 2024.

[9] Environment and Climate Change Canada, *Canada's 2030 Nature Strategy*.

[10] See, for example, Vanessa Corkal and Philip Gass, "Unpacking Canada's Fossil Fuel Subsidies," International Institute for Sustainable Development, 2020, https://www.iisd.org/articles/unpacking-canadas-fossil-fuel-subsidies-faq.

explicit, the report helps policymakers focus on what to reform, what to improve, and what subsidies to protect.

4. **Provide a shortlist of reform priorities**
   We present a targeted list of subsidies with fiscal reform potential, helping governments prioritize efforts where they will have the most impact. This shortlist accounts not only for environmental harm but also for social, cultural, and implementation risks that make reform practical.
5. **Offer an implementation roadmap**
   We recommend a phased timeline for reform starting with high-priority, low-risk reforms and expanding over time to more complex areas. This roadmap is designed to help governments balance ambition with practicality while working toward Canada's 2030 biodiversity goals.

The next sections of the paper are organized as follows:

- Section 2 outlines a step-by-step framework designed to guide the assessment and prioritization of environmentally harmful subsidies for reform.
- Section 3 provides context on estimating the value of federal subsidies in Canada, drawing on official Statistics Canada data for four natural resource sectors.
- Section 4 summarizes the identified subsidies across the four natural resource sectors.
- Sections 5 through 8 detail the application of the framework to each of the four natural resource sectors, presenting the specific results for each.
- Section 9 concludes with insights and recommendations.
- A separate document provides detailed descriptions and reform priorities for the 113 federal subsidies identified across the agriculture, fisheries and aquaculture, forestry, and mining sectors.

Fiscal costs in 2021: estimates from Statistics Canada

This section provides a summary of federal government subsidies to four of Canada's natural resource sectors, drawing on broad national accounting data from Statistics Canada for 2021. These figures provide a general benchmark and are complemented by a bottom-up assessment that compiles detailed information on individual federal support programs across each sector.

By comparing these two approaches, we can arrive at a more comprehensive understanding of the subsidy landscape, and of the ways that differences in data collection methods and scopes can result in discrepancies. In our view, the bottom-up assessments presented in the following sections provide a clearer picture than the Statistics Canada data, because they capture detailed, sector-specific government expenditures. This granularity reveals subsidy allocations and impacts that may be obscured in broader national accounts. For example, departmental grants and contributions are often recorded under the government sector in national statistics, rather than being attributed to specific industries.

In 2021, Statistics Canada reported that government subsidies across various sectors totalled $5,338 million (Figure 3), resulting in an overall subsidy intensity of 17 percent (the ratio of a sector's subsidy to value the sector added to GDP) where the higher the ratio the higher the public support.

Agriculture is the largest recipient of federal subsidies, with a total of $4,378 million (23 percent intensity). Within this sector:

- Crop production received $2,512 million at a 17 percent intensity.
- Animal production (except aquaculture) received $1,680 million at a 33 percent intensity.
- Support activities for crop and animal production received $119 million at an 18 percent intensity.
- Greenhouses and nurseries received $67 million at a 7 percent intensity.

Forestry federal subsidies total $300 million (12 percent subsidy intensity), divided between:

- Forestry and logging, which received $241 million at an 11 percent intensity.
- Support activities for forestry, which received $59 million at a 16 percent intensity.

Fisheries and aquaculture received $81 million in federal subsidies (5 percent subsidy intensity):

- Fishing, hunting, and trapping, which received $53 million at a 3 percent intensity.
- Aquaculture, which received $28 million at a 7 percent intensity.

Mining federal subsidies total $578 million (11 percent subsidy intensity), with the following allocation:

- Gold and silver ore mining received $173 million at a 3 percent intensity.
- Copper, nickel, lead, and zinc ore mining received $112 million at a 2 percent intensity.
- Other mining received $51 million at a 7 percent intensity.
- Support activities for mining received $215 million at a 23 percent intensity.
- Iron ore mining received $26 million at an intensity of less than 0.1 percent.
- Potash mining received $1 million at less than 1 percent intensity.

Figure 3: Summary of 2021 federal subsidies reported by Statistics Canada

Sector	Sub-sector	Subsidy $million 2021	Subsidy intensity (subsidy /sub-sector value added)
Agriculture	Crop production	$2,512	17%
	Greenhouse and nurseries	$67	7%
	Animal production (except aquaculture)	$1,680	33%
	Support activities for crop and animal production	$119	18%
	Agriculture sector	**$4,378**	**23%***
Forestry	Forestry and logging	$241	11%
	Support activities for forestry	$59	16%
	Forestry sector	**$300**	**12%***
Fishing	Fishing, hunting, and trapping	$53	3%
	Aquaculture	$28	7%
	Fishing and aquaculture sector	**$81**	**5%***
Mining	Iron ore mining	$26	0.1%
	Gold and silver ore mining	$173	3%
	Copper, nickel, lead, and zinc ore mining	$112	2%
	Other mining	$51	7%
	Potash mining	$1	0%
	Support activities for mining	$215	23%
	Mining sector	**$578**	**11%**
	Total sectors	**$5,338**	**17%***

* The column is not additive. Each subsector subsidy is divided by its corresponding value-added.

Source: Subsidies on products and production from Statistics Canada. Table 36-10-0001-01 Symmetric input-output tables, detail level (x 1,000)

A framework for subsidy reform

Several countries have developed processes for identifying and reforming environmentally harmful subsidies, and this practical experience serves to inform reform efforts elsewhere. The approaches taken by Sweden, Finland, Germany (Hesse), and the European Union thus offer valuable lessons for Canada.[11] Key international lessons include:

- Need for systematic identification and assessment.
- Importance of clear evaluation criteria.
- Value of stakeholder engagement.
- Benefits of phased implementation.
- Necessity of monitoring and adjustment.

Drawing from these international experiences and established methodologies, this section presents a standardized framework that federal, provincial, and territorial governments can use to systematically assess and reform subsidies affecting biodiversity in Canada.

The key steps in the framework include, with more detail provided after this introductory list:

1. **Identify priority sectors** by analyzing which economic sectors are the greatest contributors to biodiversity loss and other environmental harms.
2. **Identify subsidies and assess fiscal impacts** by cataloguing subsidies in each sector and estimating their fiscal costs.
3. **Categorize subsidies as environmentally harmful or beneficial** by evaluating whether they drive unsustainable practices, promote environmental protection, or create environmental trade-offs.
4. **Evaluate and shortlist subsidies for priority reform** by assessing environmental, social, cultural, financial, and implementation risks to identify the most practical reform targets.
5. **Develop and implement a reform plan** with clear timelines, stakeholder engagement, and ongoing monitoring to ensure effective and inclusive reform.

Each step is discussed below.

Step 1: Identify priority sectors

The first step is to identify the economic sectors that are the greatest contributors to biodiversity loss or other adverse environmental outcomes. This involves analyzing human activities and their environmental impacts to determine which sectors should be prioritized. Subsidy identification is typically organized by economic or resource sectors receiving government support. For example, Koplow and Steenblik (2024) highlight sectors such as fossil fuels, mining, agriculture, fisheries, forestry, transport, water, plastics, and construction, while the World Bank classifies environmentally harmful subsidies based on their impacts on air, water, and oceans, which serves to focus attention on resource extraction sectors. It's important to

[11] Matthews and Karousakis, "Identifying and assessing subsidies and other incentives harmful to biodiversity."

note that these international studies are not exhaustive, and additional sectors and activities may cause environmental harm, highlighting the need for a broad view of reforming environmentally harmful subsidies.

In this report, we focused on sectors associated with the most significant direct drivers of biodiversity loss, according to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES): land use change in terrestrial ecosystems and overexploitation of resources in the ocean.[12] To ensure we analyzed sectors relevant to all regions of Canada, we selected one sector that is particularly prevalent in southern Canada (agriculture); one in mid-latitudes (forestry); one in northern Canada (mining), and one in Canada's ocean territory (fisheries and aquaculture). This approach was informed by a framework developed to support implementation of the GBF known as the "Three Global Conditions for Biodiversity Conservation and Sustainable Use," which organizes landscapes into three categories based on current and historical land use and conservation priorities.[13]

Step 2: Identify subsidies and assess fiscal impacts

This step identifies and categorizes subsidies within each natural resource sector and, where possible, quantifies their fiscal cost. We define a subsidy as any government action that provides a financial advantage by supplementing income, altering prices, or lowering operating or capital costs. A literature review of federal government accountability documents, including policy statements and budgets, was conducted to build a database detailing each subsidy's granting department, benefiting sector, timeframe, type, estimated value, and program description. The goal at this stage is to value the subsidies, not yet to assess their environmental impact or reform potential. Ideally, the list is vetted with relevant departments and reviewed by subject-matter experts.

What is a subsidy?

At its simplest, a subsidy is a transfer of public value, such as direct cash payments or benefits like reduced taxes. The OECD identifies a subsidy as any government action that "confers an advantage on consumers or producers, to supplement their income or lower their costs."[14] The World Trade Organization further defines a subsidy as any financial contribution by government that confers a benefit to the recipient, including tax breaks (i.e., forgone revenue) and direct spending (i.e., grants and credit support).[15]

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[12] IPBES, "Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services," *Zenodo (CERN European Organization for Nuclear Research),* November 25, 2019, https://doi.org/10.5281/zenodo.3553579; Richard Damania, et al., *Detox Development: Repurposing Environmentally Harmful Subsidies*, World Bank, 2023, http://hdl.handle.net/10986/39423.

[13] Harvey Locke, et al., "Three global conditions for biodiversity conservation and sustainable use: an implementation framework," *National Science Review*, Volume 6, Issue 6, November 2019, Pages 1080-1082, https://doi.org/10.1093/nsr/nwz136.

[14] OECD, *OECD Glossary of Statistical Terms—Subsidy Definition,* 2005, https://www.oecd.org/en/publications/oecd-glossary-of-statistical-terms_9789264055087-en.html.

[15] OECD, *OECD Glossary of Statistical Terms.*

However, other frameworks and perspectives understand subsidies more broadly. For instance, the Germany-Mexico G20 Fossil Fuel Subsidy Peer Reviews and the International Institute for Sustainable Development's *Guidebook* provide practical approaches to identifying and assessing subsidies, emphasizing their diverse forms and potential inefficiencies.[16] Economic definitions often focus on the opportunity cost of subsidies, highlighting how they allocate scarce resources and may create distortions in market behaviour.

Subsidies are often viewed as a continuum of efficiency, with no subsidy inherently perfect or permanently effective. All subsidies have room for improvement, whether by reducing inefficiencies, minimizing environmental harm, or better targeting benefits to intended recipients. This dynamic view highlights the need for regular assessment and reform to maximize societal value and minimize unintended consequences.

Economically, a subsidy is a candidate for reform if its negative environmental, social, cultural, or economic impacts outweigh its benefits, leaving society worse off. Its effectiveness should also be judged by how well it achieves its goals, including whether benefits are properly targeted or whether "leakage" occurs, where unintended groups or purposes capture the benefits, reducing overall effectiveness.

Inefficiency arises when subsidies fail to drive behavioural change, waste public resources, or when they distort markets by lowering production costs and prices, leading to overproduction or overconsumption. These distortions amplify negative outcomes and further justify reform.

While these effects reduce economic efficiency by diverting scarce resources, they are often difficult to quantify. Governments rarely conduct or publish detailed assessments of such trade-offs, leaving decision makers to weigh costs and benefits using incomplete information. This makes transparent and inclusive decision-making processes essential for navigating these complex choices.

Subsidies can be classified along several dimensions, including:[17]

- **Beneficiaries**: Consumers, producers, or general.
- **Nature of the transfer**: How the subsidy is provided, such as direct payments, tax breaks, or credit support.
- **Incidence**: The frequency, amount, and recipient of payments.

Subsidies can take the form of direct and indirect financial transfers from governments to private entities, state-owned enterprises, or individuals. These transfers may include direct spending (e.g., non-repayable

[16] Ivetta Gerasimchuk et al., *A Guidebook to Reviews of Fossil Fuel Subsidies: From self-reports to peer learning*, International Institute for Sustainable Development, 2017, https://www.iisd.org/system/files/publications/guidebook-reviews-fossil-fuels-subsidies.pdf.

[17] UNEP, *Measuring Fossil Fuel Subsidies in the Context of the Sustainable Development Goals,* UN Environment, Nairobi, Kenya, 2019, https://www.unep.org/resources/report/measuring-fossil-fuel-subsidies-context-sustainable-development-goals.

grants), income support, the provision of goods and services below market value, tax breaks, and public investments. Government interventions are categorized by type of subsidy to understand how operations in the sector are incentivized to change behaviour.

Taxonomy of subsidies

Based on the subsidy literature, we identify four types of subsidies:[18]

- **Tax expenditures.** Tax expenditures refer to government revenue forgone through tax breaks such as exemptions, credits, and deductions, typically not available to other sectors or activities. Finance Canada reports annually on tax expenditures, detailing the beneficiaries, calculation methods, and fiscal impact.[19]
- **Price support.** This category includes market interventions that affect prices. Examples include supply management systems (e.g., dairy quotas) that limit production and raise prices, as well as subsidies or exemptions (like the federal fuel tax exemption for farmers and fishers) that lower consumer prices or protect domestic producers through import tariffs.
- **Risk transfer, or socialization of private risk**. These subsidies shift private financial risks onto the public. Examples include below-market loans, subsidized insurance (such as crop insurance), or exemptions from regulatory requirements. A notable case is underfunded environmental security bonds in mining, where the public bears the cost of reclamation.
- **Direct budgetary support.** This includes the direct provision of public funds or goods and services below market value. Examples include capital funding for small-craft harbours, operational grants, or public investments in marketing programs for specific sectors.

Step 3: Categorize subsidies as environmentally beneficial or harmful

The four types of government support identified earlier can create economic distortions that result in negative environmental impacts. This step involves screening subsidies to identify which are environmentally harmful and should be prioritized for reform, and which are environmentally beneficial and can be set aside. Even beneficial subsidies should be reviewed to assess whether their design can be improved to further strengthen environmental outcomes.

International definitions help guide this assessment. The Convention on Biological Diversity defines an environmentally harmful subsidy as one that "discriminates against sound environmental practices." Koplow and Steenblik offer a broader definition, describing harmful subsidies as government actions that, by design or effect, accelerate the extraction or consumption of natural resources or undermine

[18] See for example, World Trade Organization, *Agreement on Subsidies and Countervailing Measures*, Article 1.1, Accessed July 18, 2024, https://www.wto.org/english/docs_e/legal_e/24-scm.pdf.

[19] Finance Canada, *Report on Federal Tax Expenditures – Concepts, Estimates and Evaluations 2023*, 2023, https://www.canada.ca/en/department-finance/services/publications/federal-tax-expenditures/2023/part-1.html.

ecosystems critical to planetary health.[20] In practice, environmentally harmful subsidies are those that contribute to habitat loss, resource depletion, or pollution across natural resource sectors.

Once harmful subsidies are identified, they should be assessed to understand the specific pathways through which they harm the environment. This means looking beyond sectoral impacts to see how subsidies reshape economic behaviour, whether they fuel overinvestment, entrench outdated practices, or disrupt markets in ways that increase environmental pressure. Importantly, the assessment should also surface trade-offs. For example, wood-based biomass subsidies may reduce fossil fuel use but undermine local biodiversity. Clearly highlighting these trade-offs ensures that decision makers can weigh environmental, social, and economic outcomes transparently.

Four common types of economic distortions can help flag subsidies likely to cause environmental harm:

- **Distorted investment patterns.** Subsidies that artificially raise revenues or cut costs often lead to overinvestment and overproduction beyond efficient levels. For example, flow-through shares that accelerate mining activity, or tax breaks on fishing boats that increase fleet size.
- **Lock-in of unsustainable practices.** Subsidies that extend the life of polluting or inefficient operations delay the shift to cleaner technologies, as seen with older mining facilities kept running through public support.
- **Uneven and harmful market competition.** Subsidies that favour certain producers distort competition and, when they privilege more damaging activities, intensify environmental harm.
- **Artificially low resource prices:** Subsidies that lower commodity prices, such as discounted timber harvest fees on public lands, encourage overconsumption and overharvesting, driving deforestation and biodiversity loss.

By focusing on these patterns of distortion, governments can more effectively prioritize which subsidies to reform and design solutions that reduce both economic and environmental damage.

Step 4: Evaluate and shortlist subsidies for priority reform

This step assesses which environmentally harmful subsidies are most feasible to reform by balancing environmental benefits with social, cultural, financial, and implementation risks. The goal is to identify a short list of reforms that maximize environmental gains while minimizing unintended harms and political barriers.

Consistent with best practices in policy analysis, subsidy reform should account for non-environmental outcomes and be weighed against other, more targeted policy tools. To identify priority reform candidates, three criteria are proposed:

- **Social or cultural impact.** Reforming subsidies can be politically sensitive, especially in rural or resource-dependent regions where subsidies provide critical economic support. Many such

[20] Doug Koplow and Ronald Steenblik, *The Role of Business: Protecting Nature by Reforming Environmentally Harmful Subsidies*, Earth Track, 2022.

subsidies sustain local livelihoods in areas with few alternatives, creating dependency that is difficult to unwind. Reform may also disproportionately affect Indigenous communities if environmentally harmful subsidies play a central role in local economies. Where possible, reforms should be paired with mitigation measures or alternative supports to ease social impacts and build local support.

- **Ease of implementation.** This criterion evaluates whether reforms can be made without major policy overhauls. Large, whole-of-government initiatives like the Oceans Protection Plan or Critical Minerals Strategy may be politically difficult to alter, but targeting smaller components within these programs may be more feasible. Grants can often be phased out through the budget process, and specific tax expenditures, such as those supporting fleet expansion or mining development, are strong reform candidates. Over time, changing political and economic conditions may create new reform opportunities. Cost-shared programs with provinces add further complexity and require careful intergovernmental coordination.
- **Financial impact.** The ability of sectors or individual operations to absorb subsidy reductions varies widely. Sector-level analysis (such as profitability trends) can highlight which industries are better positioned for reform, while facility-level data can reveal important differences between large and small operations. For example, small farms typically have narrower profit margins and less ability to absorb subsidy cuts, suggesting that blanket removal may be counterproductive. Targeted, differentiated reforms can help limit unintended harm. Additionally, subsidies supporting shared rural infrastructure, such as small-craft harbours, carry broader regional risks if removed. While the fiscal size of a subsidy matters, it should be assessed alongside these other criteria to fully understand reform potential.

Ultimately, successful subsidy reform depends on balancing environmental ambition with economic fairness, social acceptability, and political viability—ensuring that reforms are both meaningful and implementable.

Step 5: Develop reform plans, monitor, and adjust

The final step is to craft a detailed, adaptive reform plan to reform harmful subsidies while minimizing economic disruption and supporting affected groups. A successful plan requires clear timelines, strong governance, sustained engagement with stakeholders and rightsholders, and a framework for learning and adjustment We propose the following guidelines to inform the development of a plan:

1. **Build a strong case for reform.** Establish a compelling rationale, highlighting the environmental, economic, social, and cultural benefits of the transition. This is essential for building public and political support and overcoming resistance.
2. **Define the policy reforms.** Clearly outline the reform strategy, including necessary legislative or regulatory changes, timelines, and accompanying policies (such as financial aid, retraining programs, or economic diversification measures) to support affected industries and communities.

3. **Engage and communicate.** Maintain transparent, ongoing communication with stakeholders, Indigenous communities, and the public. Explain expected outcomes, available financial support, and the reasons for reform. Building trust takes time and requires repeated, consistent messaging.
4. **Implement and monitor.** Roll out reforms through a clear approvals process, including:
    - Identifying needed legal or regulatory amendments
    - Allocating resources for transition support
    - Conducting consultations with affected parties
    - Setting up systems for progress tracking and public reporting
5. **Adapt and improve.** Establish a robust monitoring and evaluation framework to track impacts and outcomes. Provide regular public updates, ensure transparency, and retain the flexibility to adjust policies as new evidence emerges or conditions change.

Summary results: The reform potential of harmful subsidies

The five-step subsidy assessment framework presented here offers a structured and practical approach to addressing the complex challenge of subsidy reform. By systematically identifying harmful subsidies, evaluating their environmental and socio-economic impacts, and developing adaptive and inclusive reform plans, governments can achieve meaningful environmental benefits while minimizing disruption. Crucially, the framework treats reform as an ongoing process of assessment, adjustment, and engagement, rather than a one-off exercise.

In this section, we present the results of applying the framework to four key natural resource sectors: agriculture, forestry, mining, and fisheries and aquaculture. Other sectors, particularly oil and gas, should be similarly assessed for subsidy reform, but this report focuses on four geographically dispersed and nationally important resource sectors given considerable effort already focused on reforming fossil fuel subsidies, notably by the International Institute for Sustainable Development.

Our assessment finds that all four sectors contain numerous subsidies that are strong candidates for reform. Reforming these subsidies could significantly improve the efficiency and impact of public spending while reducing pressures on biodiversity and ecosystems. Notably, the value of subsidies fluctuates considerably across years, with a marked increase in 2022 as governments scaled up COVID-19 response measures. This year-to-year variation underscores the importance of routine reassessment to ensure subsidies remain aligned with evolving environmental and economic priorities.

Top-level findings:

- **Widespread prevalence of harmful subsidies:** Environmentally harmful subsidies are prevalent across the four natural resource sectors that are the focus of this report, underscoring the urgent need for reform to redirect public funds toward nature-positive and economically efficient practices. Across the four evaluated sectors, 113 harmful subsidies cost Canadians an annual average of $13.2 billion between 2021 and 2026 — equivalent to 20 percent of these sectors' combined GDP.
- **Beneficial subsidies are underfunded**: Environmentally beneficial subsidies are generally smaller and less frequent, highlighting the need for greater investment in programs that deliver positive environmental outcomes. A total of 29 beneficial subsidies were identified, averaging $1.8 billion annually, or just 14 percent of total subsidy spending.
- **Reform offers major fiscal and biodiversity gains**: Seventy-six subsidies were identified as reform candidates, including 40 with high reform potential, representing an average of $5.7 billion per year that could be redirected for greater environmental and economic benefit.

Sector-specific findings:

- **Agriculture**: The sector receives the largest share of federal subsidies, averaging $9.9 billion annually and a GDP subsidy intensity of 31 percent (2024). Ten beneficial subsidies (averaging $303 million per year) were identified, alongside 34 reform candidates with 14 of them high priority.

- **Fisheries**: Twenty-nine federal subsidies were identified, averaging $1.8 billion annually equal to 89 percent of sector 2024 GDP[21], with a high of $2.1 billion in 2023. Eleven beneficial subsidies (averaging $1.1 billion per year) were found, along with 14 reform candidates, eight of them high priority.
- **Forestry**: Nineteen federal subsidies were identified, averaging $619 million annually representing 18 percent of sector GDP, with a high point of $737 million in 2023. Five beneficial subsidies (averaging $398 million per year) were found, alongside 12 reform candidates — seven of these were high-priority.
- **Mining**: Twenty federal subsidies were identified, averaging $908 million annually equal to just under 3 percent of sector GDP, with a high of $1.2 billion in 2024. Sixteen reform candidates were identified, 12 of which were considered high priority.

The next four sections of the report address each sector individually, providing a detailed analysis of subsidies and their value, and discussing implications for each sector.

Figure 4: Summary of subsidies: All sectors, 2021-2026

	Count	2021	2022	2023	2024	2025	2026	Average
Total fiscal impact	**113**	**$13,038**	**$13,653**	**$15,268**	**$12,783**	**$12,838**	**$11,793**	**$13,229**
Likely beneficial	29	$1,529	$2,098	$1,875	$1,926	$1,864	$1,719	$1,834
Phased out	8	$240	$201	$186	$30	$30	$0	$115
Financial risk	14	$4,595	$5,659	$4,957	$3,303	$3,303	$3,203	$4,172
Social risk	1	$364	$364	$369	$364	$364	$364	$365
Implementation risk	21	$607	$779	$1,795	$1,026	$1,000	$994	$1,033
Assess for reform	**40**	**$5,703**	**$4,561**	**$6,085**	**$6,127**	**$6,277**	**$5,514**	**$5,711**

[21] Note, many of these subsidies do not directly support the sector but are indirect subsidies that benefit the sector through enhanced fish stocks from to conversation initiatives or other oceans sector related subsidies.

Figure 5: Summary of federal subsidies to four natural resource sectors
Annual average 2021-2026, number of subsidies

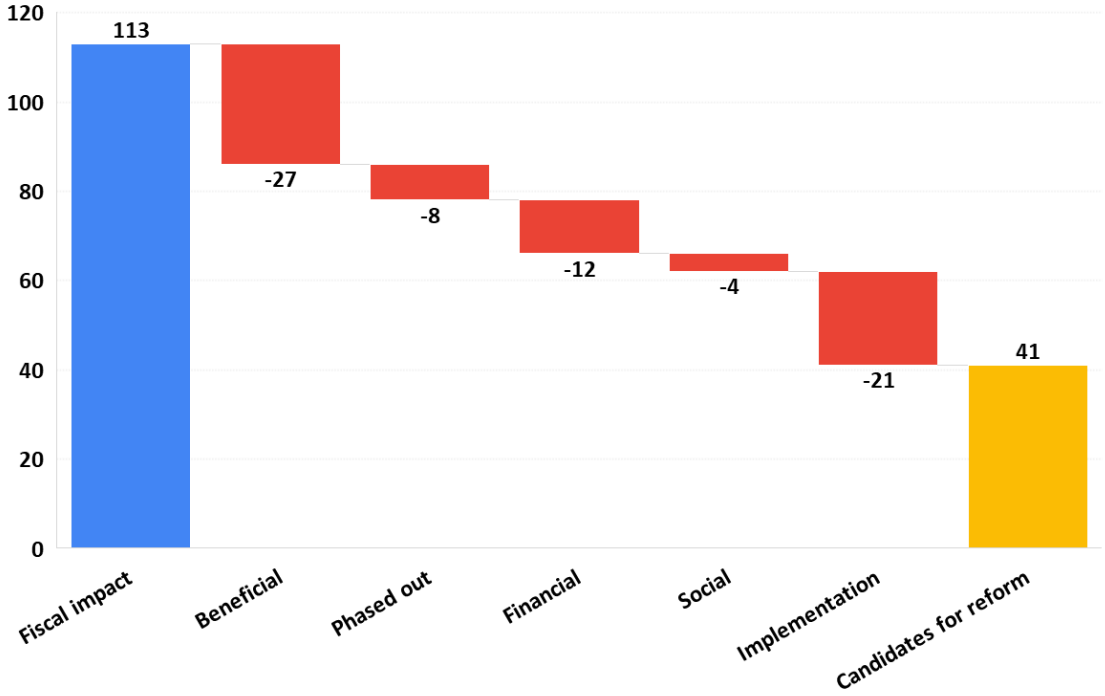
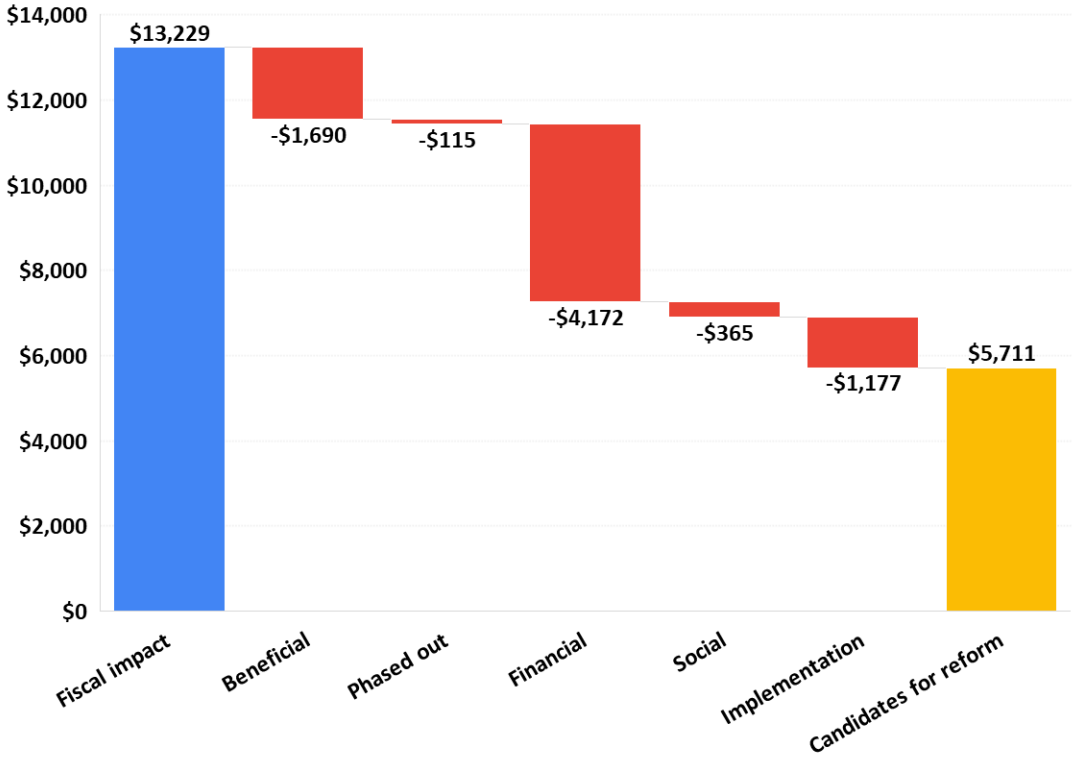


Figure 6: Summary of federal subsidies to natural resource sectors
Annual average 2021-2026, value of subsidies ($M)



Agriculture

Subsidies that intensify agricultural production may contribute to a range of environmental problems, including habitat and related species loss from land conversion, species loss (including of pollinators) due to pesticide use, soil degradation, aquifer depletion, and eutrophication of aquatic ecosystems caused by agricultural fertilizers leaching into waterways. If these negative impacts intensify with increased agricultural output, subsidies that reduce the costs of production or tie payments to the amount of output, as seen in supply management, are very likely to exacerbate these issues.

Canada's federal government supports the agricultural sector through several subsidies aimed at promoting agricultural productivity and economic stability (Figure 7). From 2021 to 2026, agricultural subsidies are characterized as follows:

- **Subsidies and fiscal impact:** There are 45 subsidies, averaging $9,881 million annually, hitting 2023 at $11,357 million. This represents 31 percent of 2024 GDP.
- **Environmentally or socially beneficial subsidies:** Nine subsidies are categorized as beneficial, averaging $159 million annually.
- **Priorities for reform:** Fourteen subsidies are identified as candidates for reform, averaging $4,639 million per year, while 21 were screened out due to various financial, social, or implementation risks.

Figure 7: Summary of subsidies with the potential for reform: Agriculture, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Total fiscal impact	**45**	**$10,718**	**$10,814**	**$11,357**	**$8,981**	**$9,088**	**$8,329**	**$9,881**
Likely beneficial	9	$31	$193	$205	$188	$188	$150	$159
Phased out	1	$50	$0	$0	$0	$0	$0	$8
Financial risk	8	$4,595	$5,631	$4,677	$3,014	$3,006	$2,906	$3,971
Social risk	0	$0	$0	$0	$0	$0	$0	$0
Implementation risk	13	$975	$1,111	$1,751	$930	$930	$924	$1,104
Assess for reform	**14**	**$5,067**	**$3,879**	**$4,723**	**$4,850**	**$4,964**	**$4,349**	**$4,639**

Subsidies and fiscal impact

From 2021 to 2026, there were 45 subsidies, averaging $9,881 million annually, with a high in 2023 at $11,357 million, and reaching the lowest level in 2026 at $8,329 million:

- **Tax expenditures**: Twelve tax expenditure subsidies averaged $1,456 million annually, highest in 2025 at $1,745 million and falling to $1,171 million in 2026.
- **Producer price support**: One producer price support subsidy consistently averaged $3,099 million annually.
- **Socializing private risk**: Seven subsidies in this category averaged $3,662 million annually, highest in 2022 at $5,273 million.

- **Direct transfers of government funds**: Twenty-five direct transfers averaged $1,665 million annually, highest in 2023 at $2,412 million and declining to $1,305 million in 2026.

Figure 8: Type of subsidy: Agriculture, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Tax expenditures	12	$1,091	$1,629	$1,512	$1,587	$1,745	$1,171	$1,456
Producer price support	1	$3,977	$2,226	$3,098	$3,098	$3,098	$3,098	$3,099
Socializing private risk	7	$4,097	$5,273	$4,335	$2,756	$2,756	$2,756	$3,662
Direct transfers of government funds	25	$1,553	$1,687	$2,412	$1,541	$1,489	$1,305	$1,665
Total	**45**	**$10,718**	**$10,814**	**$11,357**	**$8,981**	**$9,088**	**$8,329**	**$9,881**

Potential for environmental harm

Of the 45 subsidies, nine were identified as environmentally beneficial, one was phased out in 2021, leaving 34 federal subsidies that have the potential for harm to biodiversity, distributed as follows:

- **Distort investment towards overcapitalization:** Fourteen subsidies averaged $4,934 million annually, with the highest at $5,634 million in 2023.
- **Lock-in harmful production processes:** Eleven subsidies averaged $585 million annually, highest in 2023 at $994 million.
- **Impair competitive markets:** Nine subsidies averaged $3,962 million annually, with a high value in 2022 at $5,480 million.
- **Lower the price of a commodity:** Two subsidies averaged $240 million annually.

Only nine subsidies were identified as environmentally or socially beneficial, averaging $159 million annually.

Figure 9: Potential for environmental harm: Agriculture, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Distort investment to overcapitalization	14	$5,397	$4,393	$5,634	$4,818	$4,972	$4,393	$4,934
Lock-in harmful production processes	11	$385	$418	$994	$614	$550	$550	$585
Impair competitive markets	9	$4,668	$5,580	$4,287	$3,121	$3,133	$2,987	$3,962
Lower the price of a commodity	2	$237	$231	$236	$241	$245	$250	$240
Likely environmentally beneficial	9	$31	$193	$205	$188	$188	$150	$159
Total	**45**	**$10,718**	**$10,814**	**$11,357**	**$8,981**	**$9,088**	**$8,329**	**$9,881**

Priority reform opportunities

For the 45 identified agriculture subsidies, our screening exercise identified 14 subsidies with potential for reform and 21 subsidies unsuitable for reform:

- **Priority reform candidates**: Fourteen subsidies were identified for reform, averaging $4,639 million annually, and reaching a high of $5,067 million in 2021.
- **Financial impact concerns**: Eight subsidies were screened out due to significant financial impact risk, averaging $3,971 million annually, highest at $5,631 million in 2022.
- **Social impact concerns**: No subsidies were specifically dismissed due to social impact risk from reform.
- **Implementation challenges**: Twelve subsidies, consistently valued at $960 million annually, face implementation challenges due to complex administrative and regulatory issues.
- **Phased-out programs**: One subsidy has been phased out, which had an average value of $8 million annually but dropped to zero after 2021.
- **Environmentally beneficial**: Nine subsidies were identified as environmentally beneficial, averaging $159 million annually.

Our analysis of agriculture subsidies reveals a sector with significant reform potential but limited current investment in environmental benefits. Only a small fraction (1.6 percent) of agricultural subsidies support environmentally beneficial outcomes, despite agriculture's substantial environmental footprint. Many subsidies support practices that may not align with long-term conservation goals.

The fourteen priority reform candidates represent substantial funding ($4,639 million annually) that could be reformed to better support sustainable agricultural practices. Many of these subsidies lock in harmful production processes or distort investment toward overcapitalization. The highly contentious supply management system ($3,099 million annually) represents both the single largest and most contentious reform opportunity. Integrating sustainability benchmarks into production controls could drive sector-wide improvements.

Our screening methodology identified eight subsidies with substantial financial risk and reform challenges, including risk management programs like AgriStability and AgriInsurance. While these programs have environmental implications, their critical role in agricultural financial stability necessitates more nuanced reform approaches. Notably, no subsidies were screened out due to social impact concerns, suggesting that agriculture reforms, with the exception of supply management, may face fewer social barriers than in other sectors.

Implementation pathway: We recommend a three-phase implementation approach:

- **Phase 1**: Reform tax expenditures that lock in harmful production processes by implementing environmental performance criteria and sustainability requirements.
- **Phase 2**: Address fuel-related tax exemptions through phased transitions with targeted support for low-carbon alternatives.
- **Phase 3**: Integrate sustainability benchmarks into the supply management system to drive sector-wide transformation.

This phased approach balances the need for environmental improvement with the economic realities of the agricultural sector, providing a practical way to align agricultural subsidies with biodiversity and climate goals.

Figure 10: Agriculture prioritization summary
Annual average 2021-2026, number of subsidies

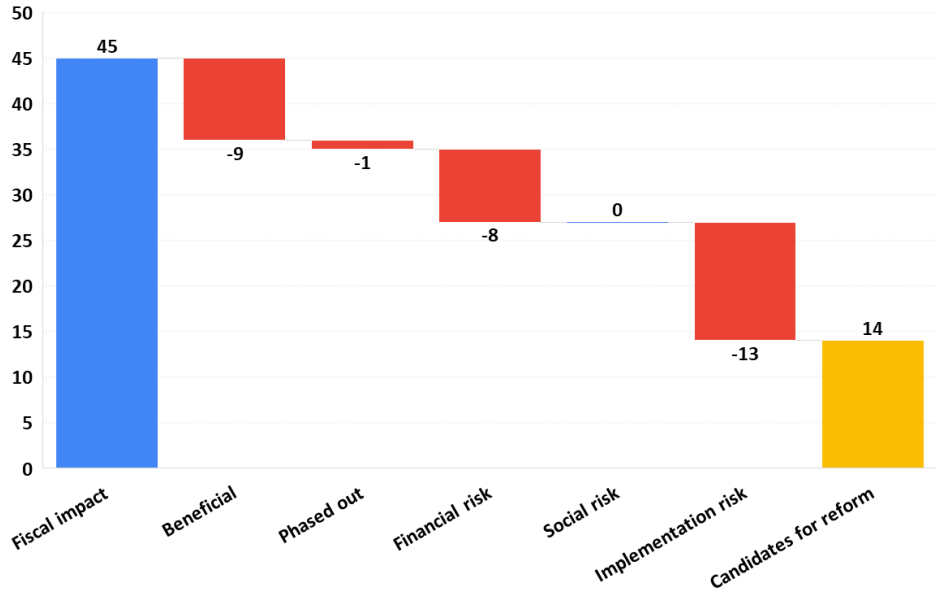
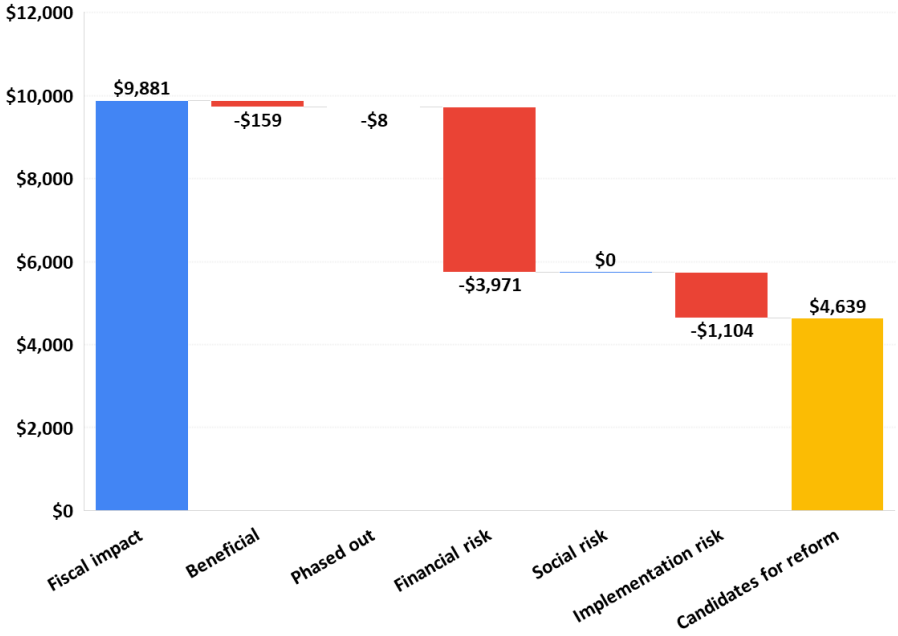


Figure 11: Agriculture prioritization summary
Annual average 2021-2026, value of subsidies ($M)



Fisheries and aquaculture

Government subsidies have been instrumental in supporting this sector. Tax incentives, grants, public infrastructure investments for fishing fleets, below-market fees for accessing ports and harbours, and fuel subsidies artificially increase the perceived value of fisheries. This incentivizes greater fishing effort, often leading to higher harvest levels. There are also a whole series of conservation programs that indirectly support the sector through stock enhancement, which typically can be viewed as being likely beneficial and therefore not priority candidates for reform.[22] Aquaculture operations vary in their impact on biodiversity, depending on the species, scale, methods and locations used; however, subsidies for more intensive aquaculture practices can exacerbate environmental damage.

Our review of subsidies from 2021 to 2026 provides an overview of how many subsidies there are, how much funding goes to beneficial subsidies, and which opportunities for reform are most important. The fisheries and agriculture subsidies include:

- **Subsidies and fiscal impact:** Twenty-nine subsidies were identified, averaging $1,821 million annually, or 89 percent of GDP. A large share of this total is for beneficial programs, sometimes with direct links to the sector, and sometimes with indirect links where conservation leads to enhanced fish stocks.
- **Environmentally or socially beneficial subsidies:** Eleven environmentally beneficial subsidies were identified, averaging $1,068 million annually.
- **Priorities for reform:** Eight subsidies, averaging $102 million, were identified as candidates for reform, while seven were screened out due to various risks. A further three subsidies had already been phased out.

Figure 12: Subsidies with the potential for reform: Fisheries and aquaculture, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Total fiscal impact	**29**	**$1,360**	**$1,821**	**$2,066**	**$1,901**	**$1,885**	**$1,894**	**$1,821**
Likely beneficial	11	$740	$1,150	$1,148	$1,135	$1,116	$1,116	$1,068
Phased out	3	$156	$156	$156	$0	$0	$0	$78
Financial risk	2	$0	$0	$246	$244	$244	$244	$163
Social risk	1	$355	$355	$355	$355	$355	$355	$355
Implementation risk	4	$55	$55	$55	$56	$56	$56	$55
Assess for reform	**8**	**$54**	**$105**	**$106**	**$111**	**$113**	**$122**	**$102**

Subsidies and fiscal impact

Twenty-nine subsidies average $1,821 million annually between 2021 and 2026, or about 89 percent of the sector's current GDP. The types of subsidies are as follows (Figure 13):

- Government transfers (14) are the predominant type, averaging $1,664 million annually.

[22] As a general rule, all subsidy programs should be periodically reviewed to ensure they are achieving stated objectives, and reforms contemplated if design could enhance performance.

- Socializing private risk subsidies are less common (7) but still significant, with an average of $59 million annually.
- Eight tax expenditure subsidies average $98 million annually.

There are no subsidies identified under producer or consumer price support.

Figure 13: Type of subsidy: Fisheries and aquaculture, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Tax expenditures	8	$54	$97	$98	$103	$113	$122	$98
Producer or consumer price support	0	$0	$0	$0	$0	$0	$0	$0
Socializing private risk	7	$88	$60	$60	$49	$49	$49	$59
Transfers of government funds	14	$1,218	$1,664	$1,908	$1,749	$1,722	$1,722	$1,664
Total	**29**	**$1,360**	**$1,821**	**$2,066**	**$1,901**	**$1,885**	**$1,894**	**$1,821**

Potential for environmental harm

Of the 29 federal subsidies, we identified 18 with the potential to lead to environmental harm, and 11 that are likely environmentally beneficial (Figure 14):

- **Distort investment towards overcapitalization**: Five subsidies, averaging $174 million annually, with amounts ranging from $6 million to $260 million, incentivize overcapitalization, where excessive investment distorts market dynamics and resource allocation.
- **Lock-in harmful production processes**: Eight subsidies, averaging $126 million annually, support production processes that may be environmentally detrimental.
- **Impair competitive markets**: Three subsidies, averaging $404 million annually, impair competitive market dynamics, leading to inefficiencies and market distortions.
- **Lower the price of a commodity**: Two subsidies, averaging $50 million annually, represent a direct intervention to lower commodity prices during this period.

The 11 environmentally beneficial federal subsidies received an average annual funding of $1,068 million. Reform could be considered to make them even more environmentally beneficial, as many of these also support economic resilience within the sector. For instance, programs like the Great Lakes Fishery Commission and the B.C. Salmon Restoration and Innovation Fund include initiatives focused on controlling invasive species, restoring habitats, and promoting sustainable fisheries practices.

Figure 14: Potential for environmental harm: Fisheries and aquaculture, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Distort investment to overcapitalization	5	$6	$14	$260	$259	$251	$251	$174
Lock-in harmful production processes	8	$210	$211	$203	$43	$45	$45	$126
Impair competitive markets	3	$404	$404	$404	$404	$404	$404	$404
Lower the price of a commodity	2	$0	$42	$51	$60	$68	$77	$50
Likely environmentally beneficial	11	$740	$1,150	$1,148	$1,135	$1,116	$1,116	$1,068
Total	**29**	**$1,360**	**$1,821**	**$2,066**	**$1,901**	**$1,885**	**$1,894**	**$1,821**

Priority reform opportunities

For the remaining 18 subsidies, the screening exercise identified eight subsidies with potential for reform, as well as reasons why 10 may not be candidates for reform:

- **Priority reform candidates**: Eight subsidies were identified for reform, averaging $102 million annually.
- **Financial impact concerns**: Two subsidies averaging $163 million annually.
- **Social impact concerns**: One subsidy averaging $355 million annually.
- **Implementation challenges**: Four subsidies averaging $55 million annually.
- **Phased-out programs**: Three subsidies averaging $78 million annually.

Our analysis of fisheries subsidies reveals a sector characterized by significant polarization between environmentally beneficial subsidies and those requiring reform. Notably, most of the funding (59 percent) already supports beneficial environmental programs, primarily through direct government transfers to initiatives like the Oceans Protection Plan, Conserving Canada's Oceans, and salmon conservation efforts.

The most promising reform opportunities come from tax expenditures that have remained largely unexamined from an environmental perspective. These subsidies, while their fiscal impact is hard to estimate due to data limitations, create persistent distortions that lock in harmful production practices—particularly through capital cost allowances, intergenerational tax deferrals, and fuel tax exemptions. The reform patterns we identified suggest a strategic opportunity for implementing sustainability criteria within existing tax frameworks, rather than eliminating supports outright.

Most significantly, our screening methodology revealed that social considerations must take precedence in certain cases, as the Employment Insurance Fishing Benefits program demonstrates. Despite potential environmental concerns, this program's critical role in supporting vulnerable fishing communities makes direct reform inadvisable. Instead, alternative approaches focused on voluntary participation in

conservation represent a more balanced pathway that acknowledges the complex socio-economic realities of Canada's coastal communities while still advancing environmental objectives.

Implementation pathway: A three-phase implementation approach is recommended:

- **Phase 1**: Focus on tax expenditures that lock in harmful production processes, being aware of financial costs to small operations.
- **Phase 2**: Assess fuel-related tax exemptions using financial impact tests, particularly for larger fishing vessels, focus on phased transitions with targeted support.
- **Phase 3**: Incorporate environmental criteria into programs with implementation challenges.

This phased approach allows for targeted, achievable reforms while building public capacity to address more complex subsidies over time, until eventually, fiscal support and biodiversity conservation goals align.

Figure 15: Fisheries and aquaculture prioritization summary
Annual average 2021-2026, number of subsidies

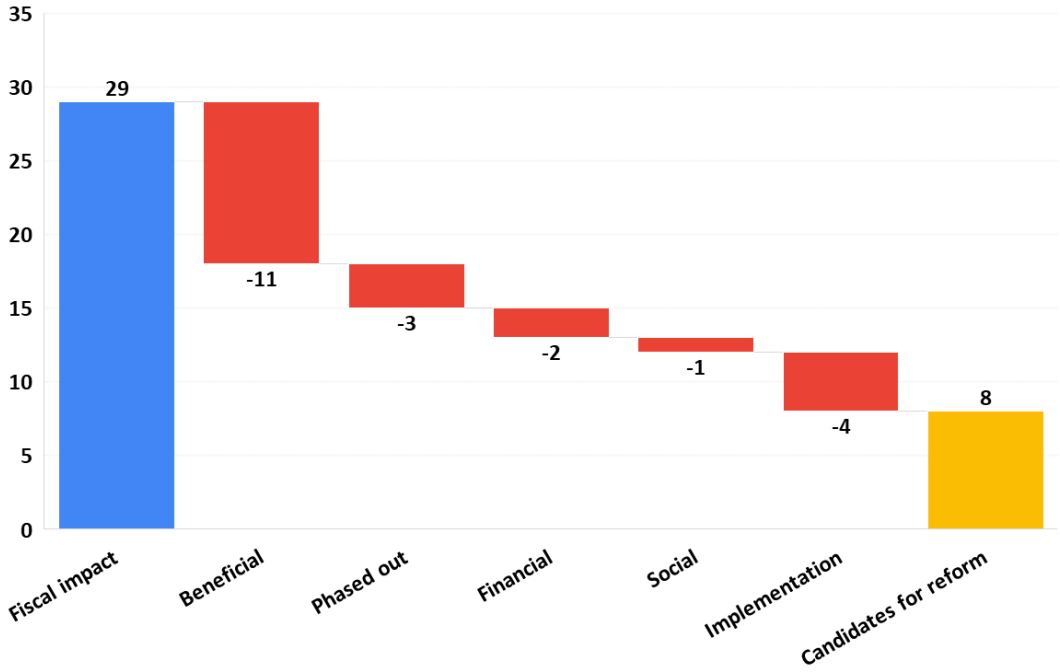
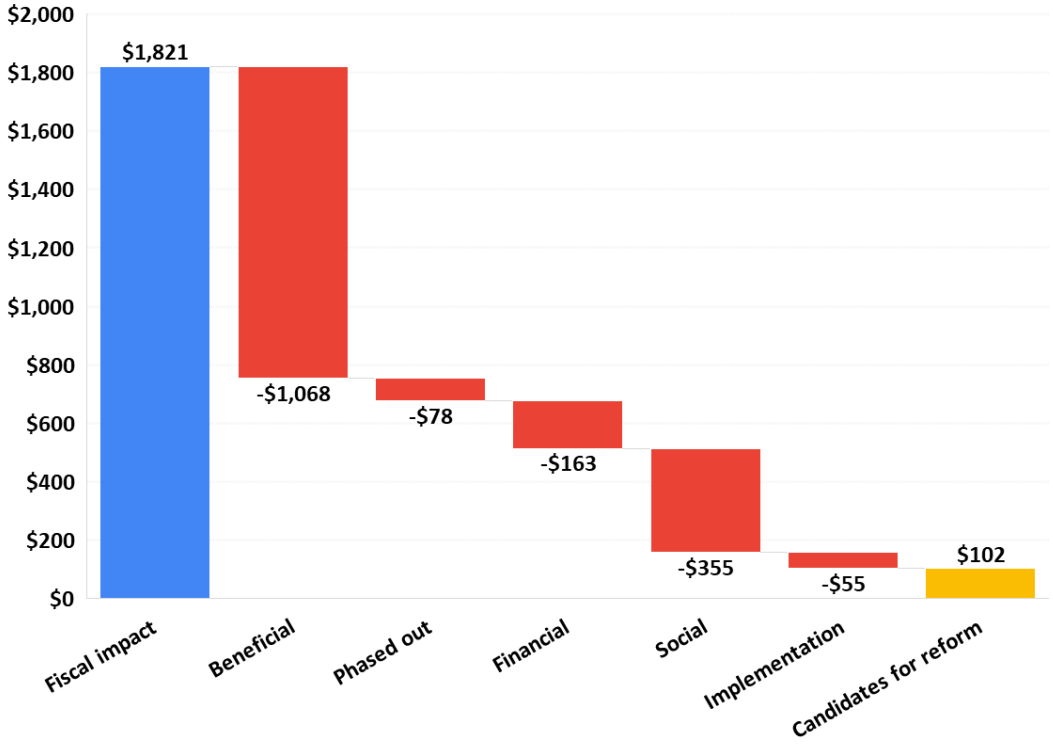


Figure 16: Fisheries and aquaculture prioritization summary
Annual average 2021-2026, value ($M)



Forestry

Forestry operations have wide-ranging environmental impacts, including effects on biodiversity, soil health, water quality, and carbon storage. While sustainable practices can help reduce these impacts, the scale and intensity of such operations remain key drivers of environmental risk. Public subsidies can unintentionally amplify these pressures by encouraging greater levels of extraction or investment in practices that may not align with conservation goals.

The federal government plays a key role in shaping the forestry sector through a wide range of subsidies that support innovation, competitiveness, and environmental stewardship. Federal programs, largely administered through the Canadian Forest Service, provide funding for marketing, technology development, research, and conservation initiatives. While many of these programs aim to enhance sustainability, their actual impacts depend on whether they drive practices that advance or undermine conservation goals. This section assesses the scope of federal forestry subsidies, highlighting opportunities for reform.

Key insights into federal subsidies in the forestry sector from 2021 to 2026 include (Figure 17):

- **Subsidies and fiscal impact:** Nineteen subsidies were identified in the forestry sector, averaging $617 million annually, or 18 percent of GDP.
- **Environmentally or socially beneficial subsidies:** Beneficial subsidies, although fewer in number (5), receive significant funding, averaging $398 million annually. Some programs present an unclear net benefit, balancing fossil fuel emission cuts from biomass with biodiversity and landscape risks from increased harvesting.
- **Priorities for reform:** Seven subsidies, averaging $194 million annually, were identified as candidates for reform, while five were screened out due to various risks.

Figure 17: Summary of subsidies with the potential for reform: Forestry, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Total fiscal impact	**19**	**$490**	**$627**	**$737**	**$713**	**$700**	**$447**	**$619**
Likely beneficial	5	$335	$353	$469	$454	$435	$343	$398
Phased out	2	$19	$10	$0	$0	$0	$0	$5
Financial risk	0	$0	$0	$0	$0	$0	$0	$0
Social risk	3	$9	$9	$14	$9	$9	$9	$10
Implementation risk	2	$0	$0	$31	$31	$5	$5	$12
Assess for reform	**7**	**$127**	**$254**	**$224**	**$220**	**$251**	**$90**	**$194**

Subsidies and fiscal impact

Subsidies averaged $619 million annually between 2021 and 2026, with a subsidy intensity of 18 percent of the sector's current GDP:

- **Tax expenditures:** Two subsidies are provided in the form of tax expenditures, averaging $112 million annually. These subsidies range from $87 million to $214 million per year, showing the significant role of tax-related subsidies.
- **Socializing private risk:** Five subsidies, averaging $26 million annually, help mitigate financial risks for private entities. These subsidies range from $14 million to $60 million per year, showing variability in funding aimed at reducing private sector risk.
- **Direct government transfers:** The most substantial subsidies are direct transfers of government funds, with twelve instances averaging $481 million annually. This heavy reliance on direct government funding underscores the role of direct financial support in the forestry sector.

Figure 18: **Type of subsidy: Forestry, 2021-2026 ($M)**

	Count	2021	2022	2023	2024	2025	2026	Average
Tax expenditures	2	$87	$214	$93	$90	$98	$90	$112
Producer or consumer price support	0	$0	$0	$0	$0	$0	$0	$0
Socializing private risk	5	$15	$15	$60	$40	$14	$14	$26
Direct transfers of government funds	12	$388	$398	$584	$584	$588	$343	$481
Total	**19**	**$490**	**$627**	**$737**	**$713**	**$700**	**$447**	**$619**

Potential for environmental harm

Of the 19 federal subsidies, 12 were flagged as environmentally harmful, 5 were identified as environmentally beneficial, and 2 were phased out. (Figure 19):

- **Distort investment towards overcapitalization:** Seven subsidies averaging $133 million annually contribute to overcapitalization, where excessive investment potentially distorts market dynamics and resource allocation. The annual amounts for these subsidies range from $99 million to $229 million, highlighting variability and the need for careful management to prevent market distortions.
- **Lock-in harmful production processes:** Four subsidies averaging $67 million annually support production processes that may be environmentally detrimental, with amounts ranging from $3 million to $158 million.
- **Impair competitive markets:** Three subsidies averaging $21 million annually impair competitive market dynamics, with amounts consistently around $42 million from 2021 to 2023.
- **Lower the price of a commodity:** No subsidies were identified in this category.

Figure 19: Potential for environmental harm: Forestry, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Distort investment to overcapitalization	7	$110	$229	$128	$124	$107	$99	$133
Lock-in harmful production processes	4	$3	$3	$99	$135	$158	$5	$67
Impair competitive markets	3	$42	$42	$42	$0	$0	$0	$21
Lower the price of a commodity	0	$0	$0	$0	$0	$0	$0	$0
Likely environmentally beneficial	5	$335	$353	$469	$454	$435	$343	$398
Total	**19**	**$490**	**$627**	**$737**	**$713**	**$700**	**$447**	**$619**

Priority reform opportunities

For the 19 identified forestry subsidies, our screening exercise identified seven subsidies with potential for reform, as well as reasons why 12 may not be candidates for reform:

- **Priority reform candidates**: Seven subsidies were identified for reform, averaging $194 million annually, with values highest at $254 million in 2022.
- **Social impact concerns**: Three subsidies averaging $10 million annually, highest in 2023 at $14 million.
- **Implementation challenges**: Two subsidies averaging $12 million annually.
- **Environmentally beneficial**: Five subsidies averaging $398 million annually.
- **Phased-out programs**: Two subsidies averaging $5 million annually, with values dropping to zero after 2022.

Our analysis of forestry subsidies reveals that nearly two thirds (64 percent) of the sector's subsidies funds environmentally beneficial initiatives, including major investments in tree planting, forest innovation, and old-growth protection. However, there is some ambiguity in this categorization, particularly around subsidies for biofuel production from harvesting waste.

The seven priority reform candidates include programs that could be substantially improved by integrating stronger environmental safeguards. These subsidies primarily distort investment toward overcapitalization ($133 million annually) or lock in potentially harmful production processes ($67 million annually). The remaining subsidies impair competitive markets ($21 million annually), further indicating areas where reform could enhance market efficiency while improving environmental outcomes.

Our screening methodology highlighted the importance of respecting social considerations, particularly for Indigenous-led forestry initiatives. Three subsidies averaging $10 million annually were screened out due to their critical importance for Indigenous economic participation and self-determination. Unlike other sectors, the forestry analysis identified no subsidies with significant financial impact concerns, suggesting that reform may face fewer economic barriers in this sector.

Implementation pathway: A three-phase implementation approach is recommended:

- **Phase 1**: Address tax expenditures and market distortion subsidies through reformed environmental criteria and certification requirements (i.e., add conditionality to the use of tax expenditures).
- **Phase 2**: Reform production process subsidies by implementing ecosystem-based management standards and sustainability monitoring.
- **Phase 3**: Develop enhanced frameworks for subsidies with implementation challenges, incorporating stronger ecological safeguards where possible.

This phased approach provides a balanced strategy for improving environmental outcomes while maintaining industry support and respecting the social and cultural importance of certain forestry programs, particularly those supporting Indigenous communities.

Figure 20: Forestry prioritization summary: Annual average 2021-2026, number of subsidies

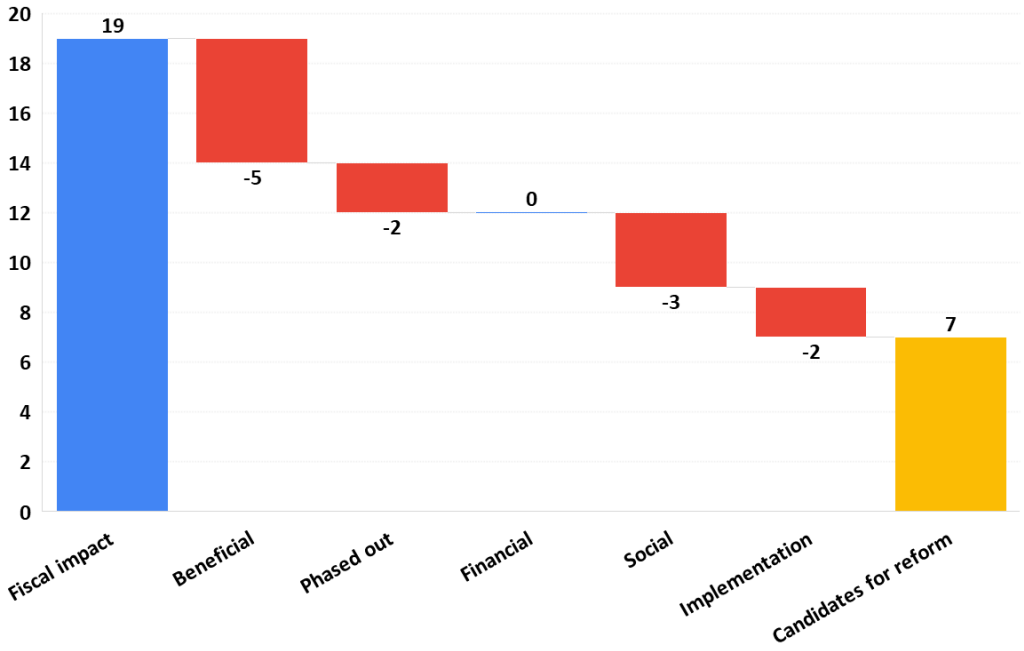
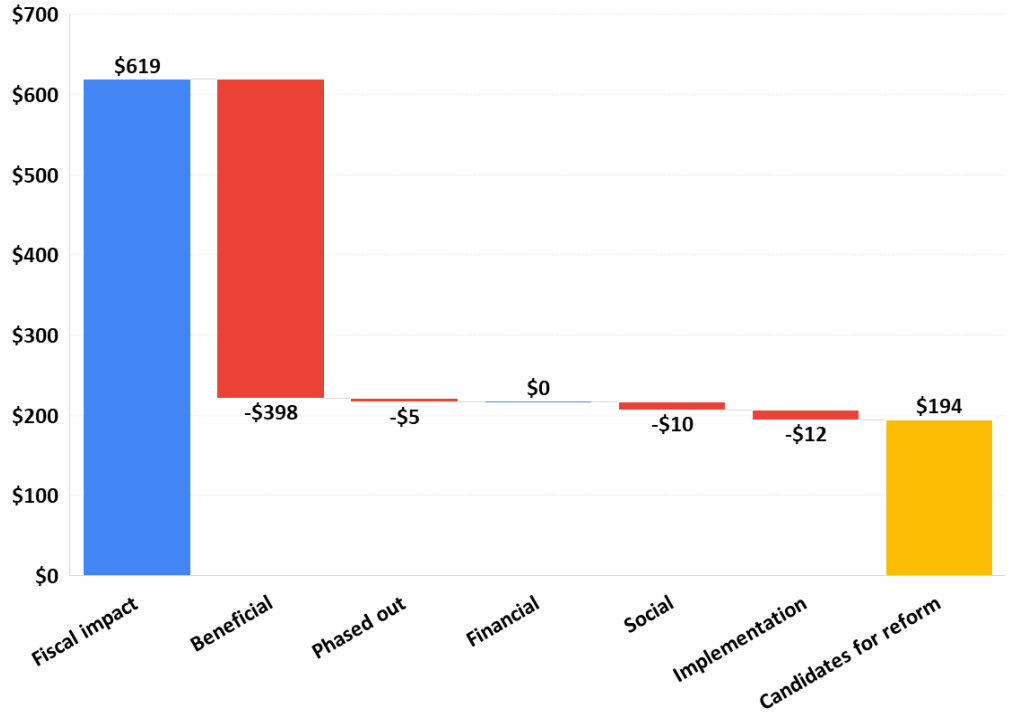


Figure 21: Forestry prioritization summary: Annual average 2021-2026, value ($M)



Mining

The environmental risks of mineral extraction are well documented: habitat destruction from surface mining, pollution from mine tailings, acid drainage, metal contamination of watersheds, erosion, land subsidence from underground operations, and depletion of aquifer supplies.[23] Infrastructure development, such as roads and transmission lines, often triggers additional industrial expansion, amplifying resource exploitation, habitat loss, and carbon emissions. These indirect or secondary impacts frequently exceed the direct project effects, but are often overlooked in environmental assessments, weakening sustainability safeguards.[24]

Not surprisingly, calls for subsidy reform in Canada's mining sector have a long history.[25] Federal support includes direct funding, infrastructure investments, tax incentives, and the public assumption of liability and risk. Measures like tax holidays for new mines, flow-through shares that pass tax benefits to investors, and grants for exploration artificially lower the cost of raw material extraction compared to recycling or waste reduction, encouraging mining in areas that might otherwise be uneconomic.[26]

More recently, the federal government has increased subsidies and tax credits to promote critical mineral exploration for electric vehicle batteries and other clean technologies.[27] While these incentives may support decarbonization goals, they risk significant ecological harm if new mining expands into carbon-dense ecosystems like peatlands or causes major habitat destruction and pollution—potentially offsetting the climate gains they aim to achieve.

The period from 2021 to 2026 provides an overview of these subsidies, highlighting both the prevalence of subsidies and the limited beneficial support:

- **Subsidies and fiscal impact:** Subsidies are significant, with an average annual amount of $908 million across 20 subsidies.
- **Environmentally or socially beneficial subsidies:** Beneficial subsidies are minimal in the mining sector, with only two identified, averaging $65 million annually.
- **Priorities for reform:** Twelve subsidies have been identified as candidates for reform, with two phased out.

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[23] Mark Winfield, et al., *Looking Beneath the Surface: An Assessment of the Value of Public Support for the Metal Mining Industry in Canada,* Pembina Institute and Mining Watch Canada, 2002.

[24] Chris J. Johnson et al., "Growth-inducing infrastructure represents transformative yet ignored keystone environmental decisions," *Conservation Letters,* 2019, 13:e12696, https://doi.org/10.1111/conl.12696.

[25] Winfield et al., *Looking Beneath the Surface*.

[26] Winfield et al., *Looking Beneath the Surface*.

[27] Ernest Scheyder and Steve Scherer, "Canadian miners cheer Ottawa's $3.8-billion critical minerals budget plan," *Financial Post,* April 8, 2022.

Figure 22: Summary of subsidies with the potential for reform: Mining, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Total fiscal impact	**20**	**$470**	**$391**	**$1,108**	**$1,188**	**$1,165**	**$1,123**	**$908**
Likely beneficial	2	$0	$0	$5	$150	$125	$110	$65
Phased out	2	$15	$35	$30	$30	$30	$0	$23
Financial risk	2	$0	$28	$35	$53	$53	$53	$37
Social risk	0	$0	$0	$0	$0	$0	$0	$0
Implementation risk	2	$0	$5	$5	$9	$9	$9	$6
Assess for reform	**12**	**$455**	**$323**	**$1,033**	**$946**	**$948**	**$951**	**$776**

Subsidies and fiscal impact

Subsidies average $908 million annually between 2021 and 2026, with a subsidy intensity of 3 percent of the sector's current GDP:

- **Tax expenditures:** Eleven subsidies, averaging $394 million annually, highest in 2021 at $470 million.
- **Producer or consumer price support:** No subsidies identified.
- **Socializing private risk:** Eight subsidies, averaging $406 million annually, with consistent high values over the period.
- **Direct transfers of government funds:** One subsidy, averaging $107 million annually.

Figure 23: Type of subsidy: Mining, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Tax expenditures	11	$470	$350	$348	$428	$405	$363	$394
Producer or consumer price support	0	$0	$0	$0	$0	$0	$0	$0
Socializing private risk	8	$0	$41	$760	$546	$546	$546	$406
Direct transfers of government funds	1	$0	$0	$0	$214	$214	$214	$107
Total	**20**	**$470**	**$391**	**$1,108**	**$1,188**	**$1,165**	**$1,123**	**$908**

Potential for environmental harm

Of the 20 federal subsidies, 18 were identified as having the potential to lead to environmental harm, while two were identified as environmentally beneficial (Figure 24).

- **Distort investment towards overcapitalization:** Eleven subsidies, averaging $579 million annually, with amounts ranging from $350 to $709 million.
- **Lock-in harmful production processes:** One subsidy, averaging $2 million annually.
- **Impair competitive markets:** Six subsidies, averaging $262 million annually, with amounts ranging from $41 million to $546 million.
- **Lower the price of a commodity:** No subsidies were identified in this category.

Figure 24: Potential for environmental harm: Mining, 2021-2026 ($M)

	Count	2021	2022	2023	2024	2025	2026	Average
Distort investment to overcapitalization	11	$470	$350	$557	$707	$709	$682	$579
Lock-in harmful production processes	1	$0	$0	$0	$4	$4	$4	$2
Impair competitive markets	6	$0	$41	$546	$327	$327	$327	$262
Lower the price of a commodity	0	$0	$0	$0	$0	$0	$0	$0
Likely environmentally beneficial	2	$0	$0	$5	$150	$125	$110	$65
Total	**20**	**$470**	**$391**	**$1,108**	**$1,188**	**$1,165**	**$1,123**	**$908**

Priority reform opportunities

For the 20 identified mining subsidies, our screening exercise identified 12 subsidies with potential for reform, as well as reasons why eight may not be candidates for reform:

- **Priority reform candidates**: Twelve subsidies were identified for reform, averaging $776 million annually.
- **Financial impact concerns**: Two subsidies averaging $37 million annually.
- **Implementation challenges**: Two subsidies averaging $6 million annually.
- **Environmentally beneficial**: Two subsidies averaging $65 million annually.
- **Phased-out programs**: Two subsidies averaging $23 million annually.

Our analysis of mining subsidies reveals a sector dominated by tax expenditures and risk socialization measures that primarily distort investment toward overcapitalization. Only a small portion of subsidies (8 percent of total funding) support environmentally beneficial initiatives, with the majority incentivizing practices that can lead to ecosystem disruption without adequate environmental safeguards.

The most promising reform opportunities come from the Critical Minerals Strategy components and exploration-related tax expenditures. These subsidies create significant investment distortions that can accelerate environmental impacts through overcapitalization of mining projects. The reform patterns we identified suggest a strategic opportunity to implement environmental performance criteria and sustainability requirements within existing funding frameworks, rather than eliminating supports entirely.

Our screening methodology revealed that financial considerations and implementation challenges must be carefully evaluated in certain cases. For instance, two subsidies with financial impact concerns play critical roles in research funding and data infrastructure that would be difficult to replace, making alternative approaches more practical than direct reform.

Implementation pathway: A three-phase implementation approach is recommended:

- **Phase 1**: Introduce environmental performance criteria within existing tax expenditure frameworks.
- **Phase 2**: Reform Critical Minerals Strategy components to incorporate sustainability requirements.
- **Phase 3**: Develop comprehensive transformation of remaining subsidies with full integration of ecological standards.

This phased approach allows for strategic sequencing of reforms from well-defined tax measures to more complex program elements to build implementation capacity and stakeholder support throughout the process while maintaining the necessary support for this strategically important sector.

Figure 25: Mining prioritization summary
Annual average 2021-2026, number of subsidies

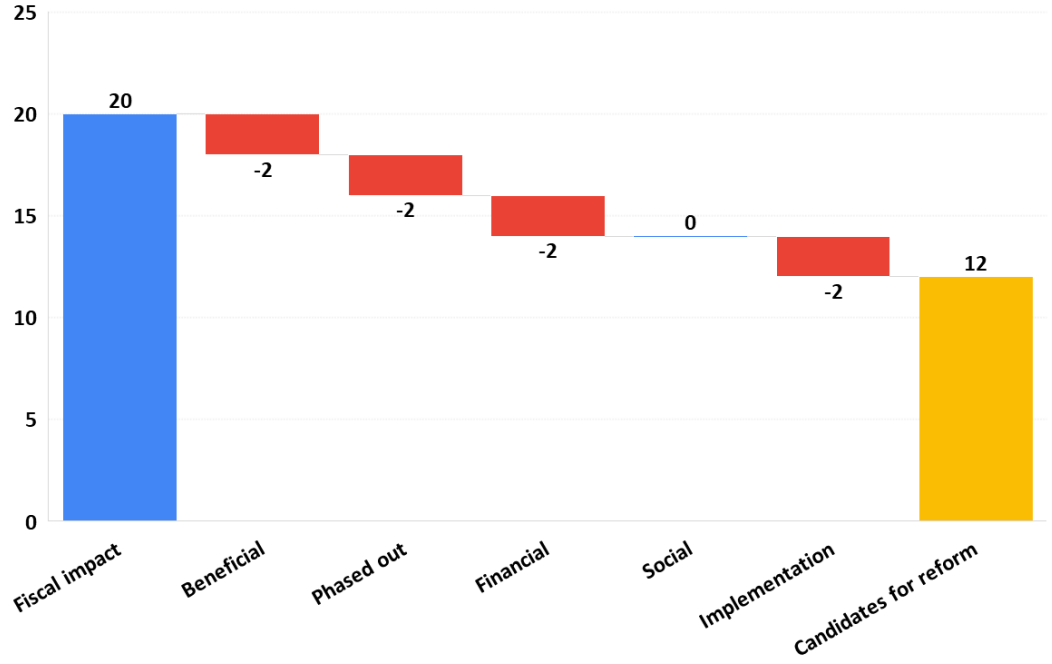
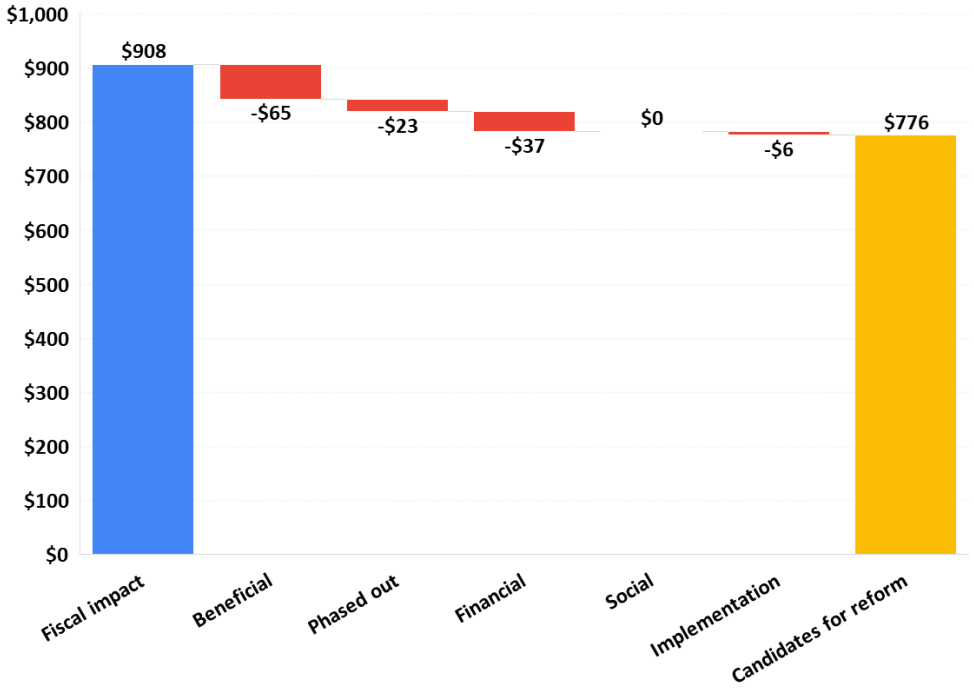


Figure 26: Mining prioritization summary
Annual average 2021-2026, ($M)



Conclusion and recommendations

This report provides a first-of-its-kind bottom-up evaluation of federal subsidies in Canada's agriculture, fisheries, forestry, and mining sectors, highlighting both the environmental and economic implications of subsidy reform. Our comprehensive framework for identifying and reforming environmentally harmful subsidies represents a significant step toward aligning fiscal policy with biodiversity goals. The systematic five-step approach we developed—sector identification, subsidy assessment, environmental impact evaluation, reform prioritization, and implementation planning—offers governments a practical methodology for addressing harmful subsidies in a way that is both environmentally effective and economically feasible.

Our assessment shows the scale of subsidy support is substantial:

- **Agriculture:** $9.8 billion per year, with $4.6 billion spent on subsidies identified as reform candidates.
- **Fisheries and aquaculture:** $1.8 billion per year, with $102 million flagged for reform.
- **Forestry:** $619 million per year, with $194 million recommended for reform.
- **Mining:** $908 million per year, with $776 million identified for reform.

Importantly, the analysis also highlights that only 27 of 113 subsidies (24 percent) were classified as environmentally beneficial. This disconnect between public spending, Canada's ongoing commitments to halting biodiversity loss, and environmental outcomes presents both a clear challenge and a major opportunity for reform.

In support of government efforts to achieve Canada's 2030 Nature Strategy and its commitments as a signatory to the Global Biodiversity Framework, we recommend the following implementation priorities:

1. **Protect and strengthen beneficial subsidies**
   Safeguard and expand programs that deliver clear environmental and social benefits, such as habitat protection and restoration, sustainable resource management, and Indigenous stewardship, while improving their design and monitoring.
2. **Prioritize high-impact reforms**
   Focus near-term efforts on subsidies with the largest payoff and minimal implementation and social risks, especially tax expenditures and funding measures that drive overcapitalization, market distortions, or lock in harmful practices.
3. **Develop and implement a clear reform roadmap**
   Establish a phased, practical plan to guide reforms across sectors:

   Short term (1-2 years):

   - Create a formal governance structure with clear accountability and regular reporting.
   - Launch reforms targeting high-priority, low-risk subsidies — particularly tax measures that distort investment.

Medium term (2-4 years):

- Expand to more complex reforms, including cost-shared programs and subsidies with sector-specific challenges.
- Develop tailored transition plans and stakeholder engagement strategies.

Long term (4-6 years):

- Establish a permanent, cross-departmental mechanism for ongoing subsidy assessment and reform.
- Ensure alignment with evolving environmental priorities, economic shifts, and international commitments

4. **Establish governance and monitoring systems**
   Put in place strong governance frameworks, with regular progress reviews and adaptive management, to ensure that subsidy reforms remain on track and aligned with biodiversity, climate, and economic goals.

What makes this approach particularly effective is its recognition that different subsidies require different reform strategies. Tax expenditures that have remained environmentally unexamined for decades offer immediate opportunities, while programs with significant social or financial implications need more nuanced approaches that preserve their essential functions while incrementally improving conservation outcomes.

Canada's 2030 Nature Strategy and associated international commitments call for an ambitious reorientation of financial flows to align incentives with biodiversity conservation. Through prioritizing reforms with the highest potential for environmental benefit and lowest implementation barriers, Canada can demonstrate leadership while minimizing economic disruption and supporting fiscal objectives to spend less. The framework presented in this report represents a practical guide to subsidy reform that seeks to balance nature conservation, fiscal prudence, and the complex economic and social realities of natural resource sectors