



Horizontal Evaluation of the Federal Leadership Towards Zero Plastic Waste in Canada Initiative

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List of acronyms and abbreviations

CCME	Canadian Council of Ministers of the Environment
CEPA	<i>Canadian Environmental Protection Act</i>
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
DFO	Department of Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
ENGO	Environmental non-governmental organization
EPR	Extended producer responsibility
G&C	Grants and contributions
GBA Plus	Gender-based analysis plus
GHG	Greenhouse gas
IKPP	Increasing Knowledge on Plastic Pollution
ISED	Innovation, Science and Economic Development Canada
NCP	Northern Contaminants Program
NRC	National Research Council of Canada
NSERC	Natural Sciences and Engineering Research Council of Canada
PPE	Personal protective equipment
PSPC	Public Services and Procurement Canada
P/T	Provincial and territorial, or provinces and territories
StatsCan	Statistics Canada
TBS	Treasury Board Secretariat of Canada
TC	Transport Canada

Executive Summary

This report presents the findings from a horizontal evaluation of the Federal Leadership Towards Zero Plastic Waste in Canada Initiative (“the Initiative”). Through the Initiative, federal partners deliver a range of programs and activities intended to address plastic waste and take the first steps to fulfill federal commitments under the Ocean Plastics Charter and the Canadian Council of Ministers of the Environment’s (CCME) Canada-wide Strategy on Zero Plastic Waste and associated Phase 1 and 2 Action Plans. Core federal departments include Environment and Climate Change Canada (ECCC), which leads the Initiative, the Department of Fisheries and Oceans Canada (DFO), Transport Canada (TC), Public Services and Procurement Canada (PSPC) and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). The evaluation covers the period from fiscal year (FY) 2019 to 2020, when the Initiative was first funded, until the fall of FY 2021 to 2022.

The evaluation focused on the activities of core Initiative partners, ECCC, DFO, TC, PSPC and CIRNAC, as well as the activities of other (non-funded), secondary Initiative partners. Secondary partners include Health Canada, the National Research Council of Canada (NRC), the Treasury Board Secretariat of Canada (TBS), Innovation, Science and Economic Development Canada (ISED) and Statistics Canada (StatsCan). The scope of the evaluation included all activities planned or implemented under the Initiative’s 6 themes. Activities undertaken following a policy announcement by the Prime Minister in June 2019 were also examined. The objectives of the evaluation were to examine issues of relevance, efficiency and implementation, and effectiveness as per the 2016 Treasury Board [Policy on Results](#), and to identify recommendations for potential improvements. Because the majority of the Initiative’s results will be reported on in March 2022, the evaluation focused largely on relevance, design, implementation, and early results. Lines of evidence included a document, data, and literature review; key informant interviews; and case studies.

Findings and conclusions

Relevance

There is a clear societal and environmental need to address plastic waste and plastic pollution. Plastics are omnipresent in our economy and many end up in landfills or the environment due to factors such as limited recycling infrastructure and limited direct economic incentives for plastics recycling and value recovery. Plastic waste presents harm to the environment, animals and potentially human health. The need for federal leadership is clear, particularly to ensure a Canada-wide impactful approach to addressing plastic waste and pollution. The federal government also has a role to play in pollution prevention and in areas such as promoting greater consistency across the country regarding plastic waste management, fostering greater producer responsibility for plastic waste and end-of-life management of plastic products and responding to and upholding international commitments concerning plastic waste and pollution. Initiative activities align well with areas for federal action. However, a multi-stakeholder approach will be required to achieve a circular, zero plastic economy.

Efficiency in implementing the Initiative

Overall, implementation of the Initiative has gone well, and most planned activities are either completed or are on track for completion. Some key implementation successes include the publication of the [Science Assessment of Plastic Pollution](#), the provision of about \$30 million in grants and contributions (G&C) to support 135 projects (research, innovation, pollution prevention and remediation or otherwise) and the amendment of all commercial fishing licences in Canada to include mandatory reporting requirements for lost gear. The COVID-19 pandemic, resource limitations and tight Initiative timelines led to delays or to the partial implementation of some activities.

The overall design of the Initiative is appropriate. The Initiative's main activity areas are aligned with federal government priorities and responsibilities, and there is no obvious evidence of overlap and duplication with the activities of other jurisdictions. Further, the Initiative's approach is comprehensive and activities are designed to address the issue from various angles and at various points along the plastics value chain. The Initiative was designed to build the foundation for future work, particularly in light of the emerging science on the impact of plastic waste and pollution on the environment and the lack of science on the impact of plastic waste and pollution on human health. Its design was built around the [Economic Study of the Canadian Plastic Industry, Markets and Waste](#), a snapshot report commissioned by ECCC in 2019 that noted the lack of data on the Canadian plastics economy and began the work to model what would need to be done to reach zero plastic waste.

A number of opportunities for improving the overall coherence and comprehensiveness of the federal government's plastic waste reduction activities were identified. These include placing greater emphasis on circular economy and prevention, minimization and reuse policies, placing greater emphasis on public education and awareness, providing additional, ongoing support for funded projects, improving the timeliness and flexibility of funding agreements, expanding the Initiative's role in supporting research and considering inclusion of additional formal Initiative partners.

Gender-based analysis plus (GBA Plus) was conducted during the design of the Initiative and has been considered in both stakeholder consultations and the implementation of several activities. Since some planned activities related to the Initiative may impact certain vulnerable population groups in different ways, GBA Plus will continue to be an important consideration for the Initiative going forward.

All federal government departments underspent on Initiative activities between FY 2019-20 and FY 2020 to 2021. Several explanations may account for this, including how each department reports separately on financial information, how unused operating funds are not carried over from one fiscal year to another, human resource constraints, delays in staffing full-time equivalents, delays or changes to Initiative activities due to COVID-19 and the late release of some funding.

Though resources were generally sufficient to deliver planned activities, some departments undertook additional unplanned activities. For example, ECCC had to develop regulations banning single-use plastics, which entailed a listing of “plastic manufactured items” on Schedule 1 of the [Canadian Environmental Protection Act, 1999](#) [CEPA] and which in turn meant that the department had to reallocate resources internally. Various efficiency measures have been implemented, including shifting resources internally, hosting engagement sessions and events virtually, transferring funds to existing G&C programs and collaborating with existing G&C programs when developing new ones, to implement best practices. The evaluation identified opportunities for improvement including enhancing delivery capacity and allowing for multi-year and longer-term contribution agreements. Additional resources will likely be required for any future iteration of the Initiative in light of new federal commitments and priorities and emerging issues.

Initiative partners consulted widely with a variety of stakeholders outside of the federal government on both the design of the Initiative and implementation of certain activities, including industry, environmental non-governmental organizations (ENGO), researchers, provincial and territorial (P/T) government representatives, and the broader public. This engagement was generally viewed as comprehensive and effective. However, several factors affected engagement, such as the fact that some external stakeholders have more capacity for engagement than others, that federal Initiative partners have limited capacity for engagement, and that there remain technological barriers to engagement. Engagement could be improved by increasing the capacity (time and resources) of federal partners to carry out engagement activities and by addressing broader barriers to government use of online platforms for engagement.

A formal governance structure is in place for the Initiative. Not all program representatives were aware of the formal governance structure. However, those who were able to comment generally agreed that the governance structure is appropriate, effective and efficient, and that it supports positive working relationships among Initiative partners. Suggestions to improve governance include sharing meeting materials well enough in advance of meetings to allow participants sufficient time to prepare, improving record-keeping procedures and increasing opportunities and support for working-level staff and federal departments that have not received Initiative funding to be engaged in and informed of Initiative activities and decisions.

A logic model and performance measurement strategy have been developed for the Initiative, and performance measurement is occurring. A number of challenges to performance measurement are present, including the complexity and scale both of activities and of the logic model and performance measurement approach, a lack of a clear underlying theory of change, a lack of clarity about how performance measurement information will be used and duplication of reporting.

Effectiveness

With regards to progress made toward the Initiative’s short-term outcomes, there is ample evidence that scientific information on plastics is being generated, as well as some evidence

that it has been used to inform policy. There is a need for additional information on plastics in the following areas: socio-economic information on plastics throughout their lifecycle, including information on the costs of transitioning to an increasingly circular economy, enhanced research efforts to quantify the contribution of the different pathways for marine plastic litter and increased data and information on the relationship between plastics, natural resource extraction, fossil fuels, greenhouse gas (GHG) emissions and the current climate crisis.

While there is some evidence of progress toward the Initiative's second short-term outcome, namely that plastics have been diverted from landfills and the environment, the total amount of waste diverted or its relative impact on the total amount of plastic waste to date is not available due to data limitations. For example, while project-level data on the amount of plastic waste diversion is available, an accurate and comprehensive accounting of the total amount of diverted plastic waste as a result of Initiative activities is not available or, in the case of such things as lost gear, is impossible to accurately estimate. Moreover, given data gaps in the current understanding of plastic waste, it is challenging to draw conclusions about the relative impact of the Initiative on plastic waste in Canada as a whole. The publication by Statistics Canada in March 2022, which provides a national flow account for plastic materials, is a first step in measuring this impact.

Recommendations

The following recommendations are directed to ECCC's Assistant Deputy Minister of Environmental Protection Branch, as the senior departmental official responsible for the Initiative, in collaboration with applicable federal partners.

- Recommendation 1: Consideration should be given to including more federal departments and agencies to support Initiative implementation. More formal recognition of and funding for, additional federal partners could improve the coherence and integration of plastic waste reduction measures being undertaken across federal government departments and agencies.
- Recommendation 2: Assess whether an additional allocation of resources and/or emphasis on prevention, minimization and reuse activities should be made. This is important given the prevalence of plastics in the lives of Canadians and in the Canadian economy and given the current lack of infrastructure for plastic waste recycling.
- Recommendation 3: Additional project funding beyond conceptualization and piloting phases should be provided to support bringing successful and innovative practices to scale.
- Recommendation 4: Update the current logic model with a view to articulating a clear theory of change and streamlining the complexity of the model and the approach to performance measurement.

1. Introduction

This report presents the findings from a horizontal evaluation of the Federal Leadership Towards Zero Plastic Waste in Canada Initiative (“the Initiative”). Through the Initiative, federal partners deliver a range of programs and activities intended to address plastic waste issues and fulfill federal commitments under the Ocean Plastics Charter, and the Canadian Council of Ministers of the Environment’s (CCME) Canada-Wide Strategy on Zero Plastic Waste and associated Phase 1 and 2 Action Plans. Core federal departments include Environment and Climate Change Canada (ECCC), which leads the Initiative, the Department of Fisheries and Oceans Canada (DFO), Transport Canada (TC), Public Services and Procurement Canada (PSPC) and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). The evaluation covers the period from fiscal year (FY) 2019 to 2020, when the Initiative was first funded, until the fall of FY 2021 to 22. This introductory section of the report provides an overview of the Initiative and the evaluation.

1.1 Initiative profile

The Initiative is organized into 6 themes. Activities within these themes are being implemented using a whole-of-government approach over 3 years.

- **Theme 1: Sustainable design, production, and after markets.** Activities within this theme support the development of regulatory, economic and fiscal measures that can play a role to support the development of a sustainable plastics economy and establish clear market signals on the value of these materials for the economy. Examples of activities include developing recycled content standards and proposing regulatory measures to implement the government’s commitment to ban harmful single-use plastics where supported by science and warranted.
- **Theme 2: Collection, management, other systems and infrastructure.** This theme involves engagement with stakeholders to expand, modernize and harmonize collection systems across Canada. Examples of activities include leading the development of a national extended producer responsibility (EPR) model program, developing a national roadmap to increase remanufacturing and refurbishing activities, establishing performance agreements in industry sectors not covered by EPR programs, expanded commercial fishing license requirements for lost gear reporting and engaging industry in collection efforts and conducting marine sector assessments to reduce plastic waste.
- **Theme 3: Sustainable lifestyles and education.** Activities under this theme seek to equip Canadians with accurate information about plastic products, their management, their impacts, and solutions. Activities include initiatives designed to raise consumer awareness of plastic waste and incite responsible behaviour change and support awareness and education of federal employees and partners to reduce plastic waste in federal operations.

- **Theme 4: Science, innovation and new technologies.** This theme aims to address knowledge gaps to support evidence-based decision-making about promising opportunities for circular economy and innovations. Activities include the implementation of Canada's Plastics Science Agenda (ECCC), launching the Canadian Plastics Innovation Challenges to advance the development of clean plastic technologies, developing methods to establish a baseline from which to measure progress and conduct surveys for plastics and supporting the coordinated generation, collection and management of scientific and environmental data and traditional knowledge through the Northern Contaminants Program (NCP).
- **Theme 5: Coastal and shoreline action.** This theme aims to reduce plastic pollution on all 3 coasts by engaging regional stakeholders and communities in prevention and clean-up activities and citizen science monitoring activities. It also includes assessment of measures under the International Maritime Organization Action Plan to Address Marine Plastic Litter from Ships.
- **Theme 6: Foundation for the circular economy.**¹ Activities under this theme include investing in partnerships and knowledge dissemination by hosting the 2021 World Circular Economy Forum.

[Annex A](#) provides a list of Initiative themes and activities.

The 6 themes are intended to begin concerted action to achieve by 2030 the ultimate shared outcome of keeping plastics in the economy, out of the environment and are designed to address the lifecycle of plastics or to instigate change. Themes 1, 2, and 5 cover the core lifecycle elements of plastics (production, use, end-of-life), while the remaining themes support future action by establishing the evidence base and necessary partnerships. Figure 1 presents the shared outcomes of the Initiative.

Figure 1: shared outcomes of the Federal Leadership Towards Zero Plastic Waste in Canada Initiative



¹ As defined by Sitra, the Finnish Innovation Fund with whom ECCC co-hosted the 2021 World Circular Economy Forum, a circular economy is "an economic model which does not focus on producing more and more goods, but in which consumption is based on using services – sharing, renting and recycling – instead of owning. Materials are not destroyed in the end, but are used to make new products over and over again" (Sitra, 2022).

1.2 Resources

Table 1 shows the new and existing funding allocated to the Initiative for the period covered by this evaluation. A total of \$64.4 million in new and existing funding was allocated to the partner departments between FY 2019 to 2020 and FY 2021 to 2022. ECCC and DFO are the main recipients of Initiative funding, accounting for 63% and 23% of the total amount of new and existing funding, respectively, over this period. Table 2 shows the distribution of Initiative funding by theme.

Table 1: Initiative funding by department, fiscal year 2019 to 2020 to fiscal year 2021 to 2022

Department	FY 2019 to 2020	FY 2020 to 2021	FY 2021 to 2022	Total
ECCC (New funding)	\$5,556,550	\$18,707,199	\$11,957,937	\$36,221,686
DFO (New funding)	\$3,000,000	\$6,000,000	\$6,000,000	\$15,000,000
TC (New funding)	\$0	\$0	\$0	\$0
PSPC (New funding)	\$1,423,000	\$2,070,000	\$2,387,000	\$5,880,000
CIRNAC (New funding)	\$350,000	\$825,000	\$825,000	\$2,000,000
Total new funding	\$10,329,550	\$27,602,199	\$21,169,937	\$59,101,686
ECCC (Existing funding)	\$528,780	\$3,698,340	\$0	\$4,227,120
DFO (Existing funding)	\$0	\$0	\$0	\$0
TC (Existing funding)	\$266,963	\$468,563	\$367,763	\$1,103,289
PSPC (Existing funding)	\$0	\$0	\$0	\$0
CIRNAC (Existing funding)	\$0	\$0	\$0	\$0
Total existing funding	\$795,743	\$4,166,903	\$367,763	\$5,330,409
ECCC (New and existing funding)	\$6,085,330	\$22,405,539	\$11,957,937	\$40,448,806
DFO (New and existing funding)	\$3,000,000	\$6,000,000	\$6,000,000	\$15,000,000
TC (New and existing funding)	\$266,963	\$468,563	\$367,763	\$1,103,289
PSPC (New and existing funding)	\$1,423,000	\$2,070,000	\$2,387,000	\$5,880,000
CIRNAC (New and existing funding)	\$350,000	\$825,000	\$825,000	\$2,000,000
Total new and existing funding	\$11,125,293	\$31,769,102	\$21,537,700	\$64,432,095

Note: The evaluation covers only the first 2 quarters of fiscal year 2021 to 2022 (that is to September 2021).

Source: Program funding documents

Table 2: Initiative funding, by theme, fiscal year 2019 to 2020 to fiscal year 2021 to 2022

Theme	Total funding
Theme 1: Sustainable design, production and after-use markets	\$8.6 million
Theme 2: Collection, management, other systems and infrastructure	\$24.4 million
Theme 3: Sustainable lifestyles and education	\$0.7 million
Theme 4: Science, innovation and new technologies	\$18.6 million
Theme 5: Coastal and shoreline action	\$5.1 million
Theme 6: Laying the foundations for a circular economy	\$4.0 million
Internal services	\$3.0 million
Total	\$64.4 million

Source: Horizontal Management Framework

1.3 About the evaluation

This mid-term evaluation focused on the period from June 2019 to September 2021. Since the Initiative is set to conclude in March 2022, various Initiative developments are expected to be completed after the submission of this report.

The evaluation focused on the activities of the core Initiative partners, namely ECCC, DFO, TC, PSPC and CIRNAC, as well as the activities of other (non-funded) secondary Initiative partners. Secondary partners include Health Canada, the National Research Council of Canada (NRC), the Treasury Board Secretariat of Canada (TBS), Innovation, Science and Economic Development Canada (ISED) and Statistics Canada (StatsCan). The scope of the evaluation included all activities planned or implemented under the Initiative's 6 themes. Activities undertaken following an announcement by the Prime Minister in June 2019 were also examined.²

The objectives of the evaluation were to examine issues of relevance, efficiency and implementation and effectiveness as per the 2016 Treasury Board [Policy on Results](#), and to identify recommendations for possible improvements. Because the majority of the Initiative's

² [Canada to ban harmful single-use plastics and hold companies responsible for plastic waste](#). (2019, June 10). Prime Minister of Canada.

results will be reported in March 2022, the evaluation focused largely on relevance, design, implementation and early results (for example, results achieved by September 2021).

Multiple lines of evidence were used, including:

- a review and analysis of publicly available and internal literature, data and documents, including key policy-setting documents, program planning and operational documents, performance measurement data, financial information, internal communications, peer-reviewed and grey literature, media coverage and other materials
- a jurisdictional review, which examined other international countries' approaches to addressing the issue of plastic waste, with the primary objective of gathering information on global trends in plastic policies and possible alternatives that ECCC may wish to consider
- in-depth interviews with 71 key informants, consisting of:
 - Initiative representatives (42 individuals), including senior managers and staff from the Initiative's 5 primary departments (ECCC, DFO, TC, PSPC, and CIRNAC) and other supporting departments and agencies (Health Canada, NRC, TBS, ISED and Statistics Canada)
 - external key informants (29 individuals), including researchers/academics, funding recipients, industry representatives, and representatives from environmental non-governmental organizations (ENGO)
- 5 detailed case studies, focusing on the following topics:
 - Federal support to industry
 - The Ghost Gear Fund
 - Office building waste audits
 - The role of science and community monitoring
 - Plastics Innovation Challenges

[Annex B](#) provides a detailed description of the evaluation approach.

2. Findings

2.1 Relevance

There is a societal and environmental need to address plastic waste and a clear requirement for federal leadership.

As the information that follows shows, there is a clear societal and environmental need to address plastic waste.

- Plastics are present in nearly every sector of the economy and every product, and global demand and production of plastics have increased faster than any other material since the 1950s, as indicated in the [Science Assessment of Plastic Pollution](#). In a 2022 Statistics Canada report, entitled [Pilot physical flow account for plastic material, 2012 to 2018](#), one of the activities supported by the Initiative, found that Canadian consumption of plastics has increased 23% between 2012 and 2018, reaching 6,323 kilotonnes.
- Most of these plastics end up in landfills or the environment.³ In Canada, only 9% of plastic waste is recycled. The rest is either incinerated in order to recover energy (4%), is leaked into the environment (1%) or ends up in landfills (86%), as mentioned in the [Economic Study of the Canadian Plastic Industry, Markets and Waste](#). As noted by the [Science Assessment of Plastic Pollution](#), the publication of which was one of ECCC's key accomplishments under the Initiative, plastic pollution has been detected on shorelines, and in surface waters, sediment, groundwater, soil, indoor and outdoor air, food and drinking water. Further, since plastics degrade slowly, the total amount of plastic waste is expected to increase over time.
- There is limited recycling infrastructure to deal with plastic waste as well as few direct economic incentives for plastics recycling and value recovery. For example, the plastics recycling industry focusses primarily on only 3 types of plastics,⁴ and recycling infrastructure tends to be located in large end-markets. Moreover, as noted in the same [Economic Study of the Canadian Plastic Industry, Markets and Waste, cited above](#), sales of domestically recycled secondary plastics are 30 times smaller than sales of primary resin. While the Statistics Canada report found that the portion of discarded plastic being diverted for material recovery has increased between 2012 and 2018, this figure is still significantly higher than the amount being recycled and also differs between product categories.⁵
- Plastic waste presents harms to the environment, animals, and human health. For example, macroplastics can cause physical harm to individual animals (for example, entanglement leading to suffocation, strangulation or mortality and ingestion leading to starvation or suffocation) and may negatively affect animal habitats by adversely affecting ecosystem biodiversity and habitat integrity.⁶ Macroplastics can also pose navigational hazards for vessels and present clean-up costs for coastal communities and industries. More research is required to understand the effects of microplastics on human health, animals and the environment.

It is generally accepted that addressing the problem of plastic waste and achieving a circular, zero plastic waste economy requires a multi-stakeholder approach. In Canada, the management of plastics and plastic waste is encompassed within legislated responsibilities for

³ To note, the Deloitte and Cheminfo Services Inc. report from which this data is drawn only considered land-based plastics.

⁴ Polyethylene terephthalate, high-density polyethylene, and polypropylene.

⁵ Statistics Canada. (2022). [Pilot physical flow account for plastic material, 2012 to 2018](#). Statistics Canada.

⁶ ECCC. (2020b). [Science Assessment of Plastic Pollution](#). Environment and Climate Change Canada.

environmental protection, waste management and pollution prevention, which are shared among federal, provincial, territorial and municipal governments. Figure 2 outlines federal, P/T and municipal authorities concerning waste management. Other non-governmental stakeholders also have a role to play, including industry, researchers, non-governmental organizations and the public.

Figure 2: Federal, provincial and territorial and municipal authorities for plastic waste⁷

Federal	Provincial and territorial	Municipal
<ul style="list-style-type: none"> • Transboundary movement of hazardous waste and hazardous recyclable materials • Management of federal contaminated sites and their clean up • Regulating the release of toxic substances • Development of guidance or other supporting measures • Management of waste and recycling on federal land and on First Nation reserves • Investments in waste and wastewater infrastructure 	<ul style="list-style-type: none"> • Establishment of waste reduction policies and programs • Approval and monitoring of waste management facilities and operations • Regulatory and non-regulatory measures targeting plastic products and waste (for example, landfill bans, EPR or product stewardship programs, litter by-laws, deposit return programs) 	<ul style="list-style-type: none"> • Management of household waste (including collection, recycling, composting and disposal)

Findings from the literature review, document review and key informant interviews confirmed a need for federal action and leadership in waste reduction. Specific areas for federal action include:

- fostering greater producer responsibility for plastic waste and end-of-life management of plastic products by supporting the development, implementation and harmonization of end-of-life performance-based regulatory requirements and EPR policies and by collaborating with key stakeholders on industry-based solutions
- addressing market dynamics and the lack of economic incentives regarding the production of new, primary or virgin plastics as compared to recycled plastics

⁷ Becklumb, P. (2019). [Federal and Provincial Jurisdiction to Regulate Environmental Issues](#). Parliament of Canada, [Canadian Environmental Protection Act, 1999](#) and [The Constitution Act, 1867 to 1982](#)

- promoting greater consistency across the country regarding plastic waste management, such as through the establishment of common definitions, performance standards and measurement and assessment protocols
- supporting needed infrastructure to deal with plastic waste and facilitate the transition to a circular economy
- supporting research on plastic problems and solutions, including addressing information gaps
- engaging in public education initiatives and awareness campaigns
- addressing plastic waste prevention by promoting actions such as single-use plastic bans, product designs favouring recyclability, repair and so forth
- addressing issues related to the global movement of harmful plastics and plastic waste
- responding to and upholding international commitments concerning plastic waste

With regard to international commitments, the March 2022 approval by the United Nations to begin negotiations of the world's first ever global plastic pollution treaty is an example of a recent international development that will have important ramifications for Canada's plastic waste reduction activities.^{8,9}

Overall, the Federal Leadership Towards Zero Plastic Waste in Canada Initiative is well-aligned with these key areas for federal action. The Initiative's 6 themes directly relate to many of the areas for national leadership listed above and many Initiative activities correspond to suggested areas for federal action.

2.2 Implementation

Most planned activities are on track for completion or have been implemented. Various internal and external factors have caused some delays or changes to planned implementation dates and activities.

Key accomplishments include the following.

As part of **sustainable design, production and after-use markets**, ECCC and Health Canada published the [Science Assessment of Plastic Pollution](#) in October 2020, which found plastic

⁸ More broadly, other national jurisdictions and the broader global community are placing increased attention and emphasis on addressing the problem of plastic waste (Kantai, 2020; UNEP, 2018; UNEP and World Resources Institute, 2020). In addition, other countries' regulatory actions related to plastics have trade and waste management implications for Canada. For example, China's decision to no longer accept the plastics waste from other countries, including Canada, increases the need for greater reliance on domestic robust plastics industries, including increasing product recyclability or the availability of alternatives, the capacity to recycle more types of plastic, improving collection and sorting practices and ensuring that recyclers collect all types of plastics including harder-to-recycle plastics.

⁹ UNEP. (2022, March 2). [Historic day in the campaign to beat plastic pollution: Nations commit to develop a legally binding agreement](#). UN Environment.

pollution, in both macroplastic and microplastic form, is everywhere in the environment. These findings were the basis for the listing of “plastic manufactured items” on Schedule 1 of the [Canadian Environmental Protection Act](#), 1999 (CEPA) in May 2021.

Following this, in December 2021, the Government of Canada published proposed [Single-use Plastics Prohibition Regulations](#), which identify 6 categories of single-use plastic items (plastic checkout bags, cutlery, foodservice ware made from problematic plastics, ring carriers, stir sticks and straws) and outline rules that would prohibit or restrict their manufacture, import and sale in Canada. The [Science Assessment of Plastic Pollution](#) also identified gaps in scientific knowledge, which became the focus of targeted funding calls for research. Work is ongoing with targeted industrial sectors in the development of national standards and performance requirements for sustainable plastics and alternatives, as well as in the improvement of plastic product design, production and after-use markets. ECCC undertook consultations on its approach to managing single-use plastics and on recycled content through the publication of the discussion paper titled [A proposed integrated management approach to plastic products to prevent waste and pollution](#).

Several federal departments advanced work to support **collection, management and other systems infrastructure**. A key success has been the creation and implementation of DFO’s [Ghost Gear Fund](#), which has supported the retrieval of more than 6,477 units of gear, totalling over 2.7 million pounds (1,259 metric tons) from July 2020 to January 2022. DFO also amended all commercial fishing licences in Canada to include mandatory reporting requirements for lost gear and provided project funding to equip small craft harbours as port reception facilities for plastic waste and ghost fishing gear from aquatic sources.

Other successes include the initiation of waste audits in over 150 federal buildings and port facilities, as well as the funding of sector- and industry-specific studies and projects (for example, for agricultural and food service plastics). Working with its CCME partners, ECCC “led stakeholder consultations to inform the Phase 2 Action Plan on Zero Plastic Waste, the final piece of an Action Plan to implement the CCME’s Canada-wide Strategy on Zero Plastic Waste.”¹⁰ Outside the Initiative but in response to new challenges for plastic waste management arising from the COVID-19 pandemic, and in particular the proliferation of some single-use plastic products such as personal protective equipment (PPE) and food service items, some departments piloted face mask and PPE recycling programs in government buildings.

PSPC sought to promote **sustainable lifestyles and education** through planned awareness, communication and outreach initiatives in federal buildings. However, owing to the decreased occupancy of federal buildings during the COVID-19 pandemic, PSPC pivoted to instead develop new tools and engagement strategies designed to raise awareness among teleworking employees and developed an employee engagement and awareness pilot program in 6 federal buildings to reduce plastic waste.

¹⁰ ECCC. (2020a). [ECCC Departmental Plan 2020-21, Supplementary tables, Horizontal initiatives, Federal Leadership Towards Zero Plastic Waste](#).

Plastic Innovation Challenges by the numbers

- **10** federal departments and agencies involved in the Innovation Challenges
- **15** Challenges over **2** rounds (2018 and 2020)
- **309** proposals submitted
- **36** projects received Phase 1 funding
- **\$7.55** million in Phase 1 funding
- At least **13** projects received Phase 2 funding
- At least **\$9.22** million in Phase 2 funding

Significant work was undertaken to support **science, innovation and new technologies**. Based on knowledge gaps identified in the [Science Assessment of Plastic Pollution](#), ECCC, Health Canada, CIRNAC and the Natural Sciences and Engineering Research Council of Canada (NSERC) provided over \$10 million to 39 projects to conduct research into the ecotoxicological and human health effects of plastics, as well as on methods and standards development for the detection of plastics. Funding was provided through a number of G&C programs, including the Cleaner Future Fund, the Increasing Knowledge on Plastic Pollution Initiative (IKPP) and the Northern Contaminants Program.

ISED has worked with 9 other government departments to launch 15 Plastic Innovation Challenges seeking to develop solutions in a number of areas, including ghost gear and marine debris, vehicle plastics, textiles and microfibers, sustainable alternatives to single-use plastics, filtration of microplastics in ship greywater and e-waste. In addition, specific challenges were created to address the

increase in PPEs stemming from the COVID-19 pandemic. In particular, the NRC led 2 challenges – one on compostable disposable surgical masks and respirators and the other on recycling technologies for single-use PPEs, with ECCC serving as a technical reviewer. ECCC worked with Statistics Canada to develop a plastic material flow account that tracks the flow of materials containing plastics in Canada; the report was published in March 2022.

In order to promote **coastal and shoreline action**, ECCC provided nearly \$5.2 million dollars through G&C funding to industry, NGOs and academia to support 28 projects. Projects sought to either raise awareness about plastic pollution, address knowledge gaps, collect science data, or pilot and implement solutions. TC launched a study to assess how specific measures under the International Maritime Organization Action Plan to Address Marine Plastic Litter from Ships could be adapted to the Canadian context.

To **lay the foundation for a circular economy**, ECCC co-hosted the 2021 World Circular Economy Forum in September 2021. Nearly 9,000 participants from 160 countries registered. The Forum was initially intended to be hosted in person in Toronto in 2020 but took place virtually in 2021 as a result of the COVID-19 pandemic. The forum focused not only on how collaboration, next generation leadership, innovation and entrepreneurship could help to

advance the circular economy, but also stressed the importance of including Indigenous and youth voices if systemic change is to be achieved.¹¹

Various factors and challenges have led to delays or partial implementation of some activities.

- **COVID-19.** Due to the COVID-19 pandemic, a number of planned activities were cancelled, delayed, or modified. For example, although PSPC planned to conduct 6 pilot projects to evaluate alternatives for office fit-up materials and furniture procurement, only 1 project was selected. The pandemic also diverted government attention and human resources from this file, as well as public and media attention and caused project-level delays for funding recipients.
- **Resource limitations.** Variations in the amount of funding requested and received in the program funding documents presented challenges for certain departments. For example, TC had planned to develop terms of reference for a study on reducing or diverting plastic waste from marine transportation sector operations but had to postpone the project for reconsideration as it was not funded in the funding decision and there was a lack of resources internally. Similarly, Health Canada and the NRC did not ask for or receive any funding under the Initiative, which limited the extent to which they could support Initiative activities because they had to use existing departmental funds. Further, partner departments such as ECCC were asked to respond to new and emerging priorities (for example, the CEPA Schedule 1 listing, the ban on select single-use plastics, PPE waste) without receiving additional resources to undertake this work. Finally, more applications were received by the Initiative's various G&C programs than could be funded using available funding, indicating that demand for project and research funding was high.
- **Engagement.** Though extensive engagement with stakeholders was conducted as part of the Initiative (see Section 2.6), there was a very high degree of public, industry, non-governmental organizations and media interest in this file. Additional human resources would have allowed for more consultation and engagement sessions to be held with the wide array of stakeholders affected by this topic.
- **Timelines.** The timeframe of 3 years for the Initiative is short. Combined with the late release of some project-level document and the onset of the pandemic in the Initiative's first year, the effectiveness and efficiency of some G&C programs were affected. For example, the late release of funding for lost gear retrieval occasionally created misalignments with the fishing season and some promising projects were not selected for funding because they extended over more than 2 years.

¹¹ The [summary report of the WCEF 2021 Forum](#) is available at Sitra and ECCC. (2021). World Circular Economy Forum 2021 Summary Report.

2.3 Design

The overall design of the Initiative is appropriate. Increased emphasis on certain key areas and inclusion of additional federal department and agency partners could help advance progress toward outcomes and improve the coherence of the government's approach to plastic waste reduction.

The evaluation assessed the appropriateness of the Initiative's design in terms of alignment with government priorities and responsibilities, overall coherence and comprehensiveness and responsiveness to emerging issues, challenges and developments. Potential alternative approaches to Initiative design were also identified.

Alignment with government priorities and responsibilities

The Initiative's main activity areas are complementary to other federal and provincial and territorial objectives for reducing plastic waste. Specifically, the Initiative is intended to help fulfill federal commitments under the Ocean Plastics Charter and the CCME Canada-Wide Strategy on Zero Plastic Waste and associated Phase 1 and 2 Action Plans. Activities related to thematic outcomes are aligned with Ocean Plastics Charter target areas. Similarly, federal partners are working in direct collaboration with the CCME on activities that fulfill both CCME and Initiative objectives.

Initiative activities also correspond with and focus on, areas where a clear need for federal leadership has been identified (see figure 2). The evaluation did not identify any obvious evidence of duplication, despite shared federal, provincial, territorial and municipal jurisdiction for waste management.

Coherence and comprehensiveness

The Initiative's current approach to addressing the issue of plastic waste is comprehensive. Activities are designed to address the issue from various angles and at various points along the plastics value chain. Key informants widely agreed that Initiative activities are appropriate for achieving intended outcomes, relevant federal departments were involved in Initiative design and implementation and ECCC's leadership is appropriate. Nevertheless, several opportunities were identified, which, if implemented, could improve the overall coherence and comprehensiveness of the federal government's plastic waste reduction activities. These are described below.

Potential improvements to Initiative design

The following potential improvements to Initiative design emerged from this evaluation.

Greater emphasis on circular economy and prevention, minimization and reuse policies

Plastics are prevalent in the lives of Canadians and in the Canadian economy and waste management systems are insufficient to deal with the volume of plastic waste currently in existence. While some Initiative activities are designed to promote and support reuse and the transition to a circular economy, many internal and external informants called for greater emphasis on activities that minimize the amount of plastic being generated and that is circulating within the economy. Suggested actions include establishing federal targets for reusing, refilling and recycling plastic containers and packaging.

Greater emphasis on public education and awareness

The general public has a role to play in the proper disposal of plastic waste and public support is critical for ensuring that addressing plastic waste issues remains a government priority. Therefore, public awareness has an influence on the achievement of the Initiative's intended outcomes. While Theme 3 includes activities related to public education, many of these were not fully implemented (see Section 2.2). Moreover, key informants identified a need to go beyond planned activities and do more to raise public awareness of the health and environmental impact of plastics, their benefits and value and proper use, reuse and recycling.

Additional support for funded projects

Many key informants suggested that greater consideration be given to how the Initiative can provide ongoing support for funded projects. Initiative funding has effectively supported the piloting of several new programs and technologies, but there may be an ongoing role for the federal government to play in ensuring that promising projects can be replicated, expanded and generally supported moving forward. Key informants called for an expansion of Initiative funding opportunities, to move projects beyond the conceptualization or pilot phase.

Improve the timeliness and flexibility of funding agreements

The following issues were identified in relation to the timing of funding release, the overall timeframe for project funding and the flexibility of funding mechanisms:

- For some funded projects, the late release of some funding hindered project delivery. Notably, for some DFO contribution agreements, funding decisions were not available in time to support some season-sensitive work.
- Internal key informants reported instances where promising projects were overlooked for Initiative funding because they required implementation over a longer time period than available funding mechanisms allowed.
- The inflexible nature of some Initiative funding mechanisms was reported to limit the ability of researchers and project funding recipients to respond adequately to issues and

developments that emerged over the course of their work. In particular, some funding recipients were limited in their ability to extend or carry over funds or adjust study or project parameters in response to project delays or new information that they encountered during implementation.¹²

Key informants suggested that the Initiative allow for multi-year contribution agreements and more flexible funding mechanisms (rather than fixed funding arrangements), to ensure that promising longer-term projects can be supported, time-sensitive project work can be completed within the project funding timeframe and projects can adapt more easily to emerging issues and developments.

Expand the role of research

Evaluation findings point to an expanded role for the Initiative in supporting plastics-related research. While the Initiative has supported a wide range of research projects (see Section 2.9), gaps in scientific and socio-economic information about plastics remain. Key informants identified a need for additional and ongoing research in several areas (see text box).

Additionally, there is an opportunity for the Initiative to better support the development and use of internal government research capacity. Currently, the Initiative's funding for research activities focuses primarily on support for non-government researchers.¹³ While federal government researchers have also made research contributions to the Initiative, these contributions have been supported largely through departmental base funding.¹⁴

Topics for ongoing or additional research

Key informants called for additional support for information and research related to the following topics:

- The impact of plastics on health of communities (particularly in areas where plastics are being produced in large quantities)
- The full impact of plastics over their lifecycle
- Specific regional challenges for waste management
- The impact of plastics in relation to GHG emissions, as well as links between plastic waste, fossil fuel use and the climate crisis
- Microfiber pollution
- Health and safety implications of recycled content in food-grade material
- How to shift away from an “extraction economy” and towards a “reuse economy”
- Quantifying the contributions of different pathways for marine plastic litter

¹² It should be noted that this issue was highlighted in particular in relation to funding for scientific and academic research (such as that available through the NSERC's [Plastics Science for a Cleaner Future Fund](#), the [Increasing Knowledge on Plastic Pollution Initiative](#) and CIRNAC's [Northern Contaminants Program](#)). By contrast, key informants consulted in relation to the Ghost Gear initiative reported that the funding mechanism was sufficiently flexible.

¹³ University academics, other non-governmental organizations and community-based researchers, including the Conference Board of Canada, Canadian Standards Association, Centre de transfert technologique en écologie industrielle and the National Institute of Scientific Research, received G&Cs funding to conduct research.

¹⁴ Initiative-aligned research and development activities carried out by the NRC through the Advanced Manufacturing Program are one example of government research carried out through base rather than Initiative funding. Also worth

Internal and external key informants perceive this as an oversight. Since government researchers are frequently called on by Initiative partners to provide plastics-related advice, guidance and expertise, there is a need for this work to be supported more directly through the Initiative.

Ongoing resources for research activities are also needed to ensure that Initiative partners can stay abreast of new developments in plastics science. Rapidly evolving scientific and technological developments are affecting all aspects of the plastics value chain and have waste management implications for Canada. For example, new plastics and plastic products, recycling methods and waste disposal technologies are continuously emerging and waste collection and recycling systems are challenged in keeping up with advancements in plastics science.¹⁵ Many key informants reported that the rapid pace of scientific and technological change is challenging the federal government's ability to keep up with advancements and identified a need for improved science and research capacity.

Expand the Initiative to include additional partners

Federal departments and agencies are undertaking a number of activities related to plastic waste reduction without formal Initiative support or funding. These activities include both additional work undertaken by Initiative partners using their own internal resources in the absence of Initiative funding, as well as unfunded (that is, internally funded) contributions to Initiative activities made by supporting departments. Examples include:

- contributions of ISED, NRC and TC to the administration of Canadian Plastics Innovation Challenges
- contributions of NSERC and Health Canada to the delivery of scientific and academic research funding programs, namely, the Plastics Science for a Cleaner Future Fund (led by ECCC in collaboration with NSERC) and the Increasing Knowledge on Plastic Pollution Initiative (led by ECCC in collaboration with Health Canada)
- additional activities undertaken by DFO (including Operational waste audits and the Zero Waste Box pilot project) using internal resources
- internal funding allocations made by ECCC and DFO to Canadian Plastics Innovation Challenges (to go beyond Initiative allocations for this activity)

While this informal support has been beneficial to the Initiative, internal key informants emphasized that an over-reliance on departments to cover the cost of Initiative-related activities may ultimately limit the Initiative's success and recommended that the Initiative:

noting is the postponement of TC's planned study on reducing or diverting plastic waste from marine sector operation due to financial uncertainty around the availability of Initiative funding to support this activity.

¹⁵ Cocker, J., Pariseau, J.-A., Larnder-Besner, M. & Taylor, B. (2021, March 22). [State Of Regulation Of Plastics In Canada: The Basics](#). Mondaq; and Ellen MacArthur Foundation, McKinsey & Company, & World Economic Forum. (2016). [The New Plastics Economy: Rethinking the future of plastics](#); Tullo, A. H. (2019, October 6). [Plastic has a problem: is chemical recycling the solution?](#) [Chemical & Engineering News](#).

- include additional federal departments and agencies as formal partners, particularly those that currently supporting Initiative activities, namely Health Canada, NRC, TBS and ISED
- secure funding for related activities currently being carried out by departments in absence of Initiative funding

In addition to internal partners, many key informants also emphasized the importance of working with provincial, territorial and municipal partners to ensure that progress is made in areas that fall outside of federal jurisdiction. While these stakeholders are currently engaged in the Initiative (see Section 2.6),¹⁶ it was suggested that including provincial, territorial and municipal stakeholders as formal Initiative partners may foster greater collaboration among levels of government and allow the Initiative to expand its scope of action into areas where provincial, territorial and municipal governments have primary jurisdiction.

Expand the scope of the Initiative by adopting a holistic, environmental outcome-based approach to waste management

The [Zero Plastic Waste Initiative](#) is one aspect of the Government of Canada's approach to waste management. However, several program representatives and external key informants suggested that the federal government do more to integrate plastic waste reduction measures into a broader national (federal, provincial and territorial) waste management strategy. These key informants advocated a more holistic approach in considering plastic waste in relation to other types of waste and in measuring the success of waste reduction measures, citing the following reasons.

- As plastic alternatives can also have negative environmental impacts, developing packaging and waste policies that are more “material neutral” and focused on environmental outcomes can help to ensure that switching from plastics to other materials does not result in negative impacts.
- Environmental outcomes, such as reduced greenhouse gas (GHG) emissions and climate impact, are better indicators of the success of waste reduction efforts than the tonnage of plastic waste diverted.

As the comparative analysis identified, the United Kingdom has taken such an approach, incorporating plastic waste reduction measures into a broader national waste management strategy. [Our Waste, Our Resources: A Strategy for England](#), released in 2018, sets out a plan for doubling resource productivity and eliminating avoidable waste by 2050. The strategy emphasizes shifting from weight-based metrics for measuring resource use and waste to alternative metrics to help ensure more outcome-based capturing and reporting on the impact of

¹⁶ ECCC continues to collaborate with the provinces and territories through the CCME to deliver on the Zero Plastic Waste Action Plan Phase 1 and 2.

plastic waste.¹⁷ The United Kingdom's strategy may provide some insights, should the Government of Canada consider expanding the scope of the Initiative. However, it should be noted that the Government of Canada's ongoing circular economy work may address some of these concerns.

2.4 Consideration of GBA Plus

GBA+ was considered in the design and implementation of the Initiative. Additional focus on GBA+ will be important going forward, since it is anticipated that some activities will impact certain population groups differently.

GBA Plus (gender-based analysis plus) was conducted during the design of the Initiative and considered in implementation of several activities. GBA Plus is mentioned in the program funding documents and the analysis identified that the overall Initiative may impact various subpopulations differently based on, for example, location, gender and socio-economic status. For example, it was recognized that the Initiative, as a whole, might:

- positively impact people living in coastal, shoreline, Northern and remote regions, who are disproportionately affected by plastic waste issues
- exacerbate urban-rural divisions, given differences in the availability of recycling and waste disposal options
- disproportionately benefit men by supporting traditionally male-dominated sectors such as science, technology, engineering and mathematics

At the activity level, GBA Plus considerations were incorporated into the selection of recipients for Initiative G&Cs and other funding. For example, Plastics Innovation Challenge applicants were required to outline the impact of GBA Plus impact in their project proposals. Similarly, Indigenous participation was included in application requirements and proposal scoring and selection for certain DFO funding opportunities. Notably, for the DFO's Ghost Gear Fund, the program established and met a target of awarding 10% of agreement funding to Indigenous communities.

GBA Plus was also considered in the conduct of stakeholder consultations undertaken to inform regulatory planning. For example, to inform development of a single-use plastics regulation, tailored consultations were carried out with Indigenous organizations, organizations representing Canadians with disabilities and major grocers. These consultations helped to improve understanding of the different ways in which Indigenous people, low-income Canadians and Canadians with disabilities are potentially impacted.

¹⁷ Regarding specific plastics measures encompassed within the [Our Waste, Our Resources: A Strategy for England](#), the strategy aims to achieve zero avoidable plastic waste by the end of 2042, and to recycle 50% of plastic material waste by 2025 and 55% by 2030. A tax on plastic packaging containing less than 30% recycled plastic is planned (HM Government, 2018). Additionally, the United Kingdom banned plastic straws, cotton buds and stirrers through [The Environmental Protection Regulations 2020](#).

Key informants emphasized that some planned activities certain vulnerable population groups may be impacted differently. For example, activities that may result in added costs to industry, including the implementation of EPR programs, setting recycled content standards and enacting the proposed ban on single-use plastics, have the potential to disproportionately impact lower-income Canadians, to the extent that industry will pass these added costs on to consumers. This is particularly the case when policies apply to companies producing or supplying common consumer goods, which make up a greater proportion of household spending for lower-income families.¹⁸ The Enactment of the proposed ban on single-use plastics is also anticipated to disproportionately affect Canadians with disabilities by increasing the cost or decreasing the availability of single-use items upon which they may depend (plastic straws, in particular). However, it should be noted that current draft regulations address this issue through an exemption on straw use for Canadians with disabilities. Given the potential for certain activities to impact certain groups differently, GBA Plus will continue to be an important consideration for the Initiative going forward.

2.5 Resource use and alignment to mandate

All departments underspent on Initiative activities between FY 2019 to 2020 and FY 2020 to 2021 for a number of reasons, including human resource constraints, delays in staffing full-time equivalents, delays or changes to activities due to COVID-19 and the late release of some funding. Though resources were generally sufficient to deliver planned activities, some departments were tasked with additional unplanned activities, which put a strain on resources. Various efficiency measures have been implemented, but there are opportunities for further improvement. Additional resources are likely required for any future iteration of the Initiative in light of new federal commitments and priorities, greater numbers of federal departments involved and emerging issues.

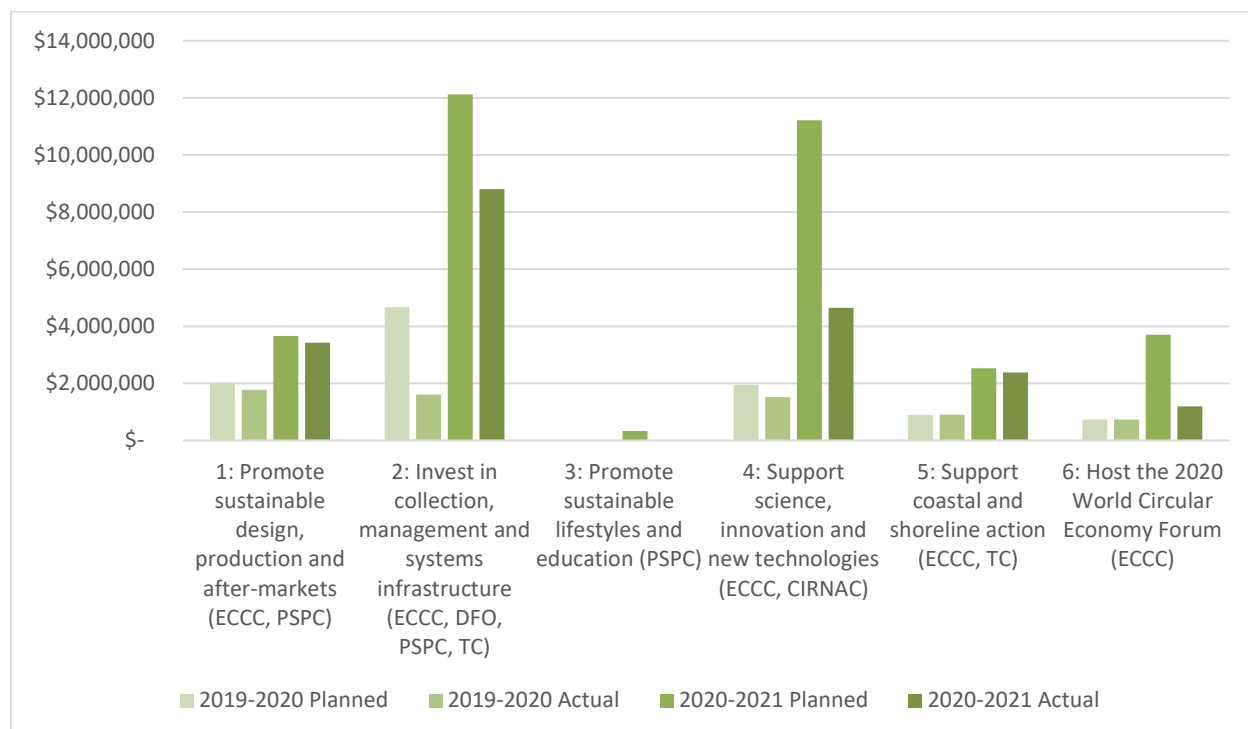
Though the Initiative extends to March 31, 2022, the scope of the evaluation and the availability of financial data are such that only financial data from 2019 to 2020 and 2020 to 2021 are presented.

Between FY 2019 to 2020 and FY 2020 to 2021, departments cumulatively spent 62% of the planned Initiative resources.

- Though all departments underspent, PSPC (16%) and CIRNAC (56%) both spent less than the departmental average.
- As shown in Figure 3, actual spending on Themes 1 and 5 was close to planned (92% and 96%, respectively). The Initiative underspent on Theme 3 (2%) and Theme 6 (44%).

¹⁸ The GBA Plus analysis conducted in relation to the program funding documents states that the Initiative aims to benefit all Canadians equally, and is not expected to “create barriers, discriminate, or engender disparity between men and women or gender diverse peoples.” However, differential negative impacts may be experienced by women and single-parent families to the extent that these groups are disproportionately represented among lower income Canadians.

Figure 3: Comparison of planned and actual spending by theme, fiscal year 2019 to 2020 to fiscal year 2020 to 2021



Source: Corporate Services and Finance Branch, ECCC.

Several explanations exist for these variations, including the ways in which finances are used and reported on by departments. For example:

- Funds that were transferred from an Initiative department to another partner (whether included in the Initiative or not) are reported by the department that received the funding and not the department that transferred the funding.¹⁹
- It is ECCC procedure to reallocate any unspent operating funds either to other departmental priorities or to be carried over to the next fiscal year in the departmental operating budget. This budget then becomes the department's opening balance, which allows the Deputy Minister to fund emerging priorities. In the case of ECCC, unused Initiative operational funding in FY 2019 to 2020 and FY 2020 to 2021 was not re-invested into the Initiative. Similarly, there is no carry-forward mechanism for G&C authorities; such funds can only be shifted between fiscal years, provided there is Treasury Board authorization. ECCC generally uses lapsed G&C funding to support

¹⁹ For example, in FY 2020 to 2021, ECCC planned to spend \$10.2 million on G&Cs for the Initiative, but spent just under \$4.4 million (43% of planned). However, ECCC transferred authorities to 2 other government departments via Supplementary Estimates to undertake G&Cs in support of the Initiative. More precisely, ECCC transferred \$250,000 to CIRNAC for the Northern Contaminants Program and \$5 million to NSERC for the Plastic Science for a Cleaner Future Fund. Accounting for these transfers, actual G&C spending is much closer to the planned amount (\$9.6 million actual or 94.2% planned), even if this is not reflected in the financial data.

other branches or departmental priorities, which means those funds were also not necessarily re-invested into the Initiative.

- As actual spending for FY 2021 to 2022 will not be available in time to support this evaluation, it is challenging to comment on the extent to which Initiative spending will have “caught up” by the end of the 3 years.

The evaluation was unable to reconcile discrepancies in planned and actual spending for other departments since financial information is reported separately by each Initiative partner. Internal key informants provided explanations for these variations, including human resource constraints, delays in staffing full-time equivalents, delays or changes to Initiative activities due to COVID-19 and the late release of some funding.

Many internal key informants mentioned it was challenging at times to determine whether Initiative resources were sufficient to deliver planned activities, though some trends emerge.

Departments that experienced significant discrepancies between the funding requested and the amount received were less likely to indicate that Initiative resources were sufficient. For example, TC was charged with 2 primary tasks in the Initiative – developing marine transportation sector assessments for plastic waste reduction and conducting an assessment of the measures under the International Maritime Organization Action Plan to Address Marine Plastic Litter from Ships – but funding was not specifically allocated to this work.

Initiative resources were sufficient to undertake work on some activities, such as consultations and engagement sessions, or for G&C programs, though key informants noted that more could have been done with additional resources.

Several new priorities and issues related to plastic waste and pollution emerged during the Initiative’s implementation. Departments were asked to undertake additional activities to respond to these priorities but were not allocated additional funding for them. As such, Initiative resources were pulled from planned activities, making it even more difficult for internal key informants to assess resource sufficiency. For example:

- The listing on Schedule 1 of CEPA and subsequent regulations banning select single-use plastics emerged as a government priority, which required ECCC to devote considerable time and resources to the file at the expense of other Initiative work.
- The COVID-19 pandemic drew senior management and public attention away from plastic waste. It also created a surge of PPE, which not only increased the amount of single-use plastics in the Canadian economy but also saw departments tasked with developing solutions to respond to PPE. Finally, the pandemic caused delays and disruptions to funded research and pilot projects, which limited their ability to achieve their expected outcomes.

Internal key informants reported that various measures have been taken to help address resource pressures and balance workload with available resources, including:

- shifting resources internally
- transferring funds to existing G&C programs, such as the NCP and Innovation Solutions Canada, in order to deliver Initiative G&C funding efficiently through proven mechanisms
- similarly, collaborating with existing areas of expertise when developing new programming in order to implement best practices, as was the case with DFO working with the Global Ghost Gear Initiative when designing the domestic Ghost Gear Fund
- hosting virtual activities, forums and engagement sessions to reduce expenses and human resource demands that would have been associated with in-person activities

Suggestions for further measures to enhance efficiency include:

- having additional personnel who are dedicated to plastic waste and are therefore less likely to be pulled away by new and emerging priorities
- allowing for multi-year and longer-term contribution agreements so that the most effective and efficient projects can be supported

Internal key informants generally agreed that additional resources are required for any future iteration of the Initiative, citing:

- the sheer scope and complexity of the plastic waste problem—plastics are present in virtually every aspect of the Canadian economy and of Canadians' lives and global plastic production continues to increase
- increased federal government commitments at both the national and international stage (for example, the intent to bring the ban on single-use plastics into force by the end of 2022, or Canada's recent support of the United Nations resolution to end plastic pollution and to create an international legally binding agreement by 2024)²⁰
- the rapidly changing pace of scientific and technological advancement, which will present new challenges and opportunities when dealing with plastic waste
- the high degree of public interest in the file, which, in addition to creating a need for increased engagement with the public and resources to respond to media inquiries, also creates pressure to achieve tangible results
- the need to engage all relevant stakeholders and sectors involved in plastics, including manufacturers and producers, recyclers, various levels of government, industry groups, environmental non-government organizations, Indigenous groups, youth and the public.

2.6 Engagement

²⁰ UNEP. (2022, March 2). [Historic day in the campaign to beat plastic pollution: Nations commit to develop a legally binding agreement](#). UN Environment.

Initiative partners' efforts to engage external stakeholders are viewed as comprehensive and effective. Areas for improvement centred on addressing some internal constraints to engagement.

Stakeholders external to the federal government

Initiative partners consulted widely with a variety of stakeholders outside of the federal government—including industry, ENGOs, researchers, P/T representatives and the broader public—in relation to both the design of the Initiative and implementation of certain activities. External stakeholders were engaged in the Initiative in a number of ways (see text box).

In consulting with external stakeholders, a variety of formal and informal engagement mechanisms were used. Specific examples include (but are not limited to):

- a public consultation process, organized by ECCC in 2018, to inform Initiative design
- virtual engagement sessions and webinars led by ECCC in 2020, involving industry, government, civil society organizations and other stakeholders, to provide information and gather feedback on the proposed federal approach
- topic-specific workshops and follow-up discussions (hosted or co-hosted by ECCC) with industry, P/T representatives and other stakeholders, to support work on development of standards and performance requirements
- expert engagement activities (namely, a Best Brains Exchange and a Canadian Science Symposium on Plastics)
- production and dissemination of communications materials on the Ghost Gear Program, led by DFO
- participation of Initiative partners in multi-stakeholder committees and tables with an interest in the Initiative, including the Canada Plastics Pact, the Plastics Alliance of Alberta, Québec's Circular Plastics Taskforce and CIRNAC's NCP management committee.

- formal consultations with key stakeholders to determine the potential impact of particular measures on certain population groups, including consultations with disability organizations regarding the potential impacts of a single-use plastic ban and industry consultations regarding EPR initiatives, recycled content and [Canadian Environmental Protection Act, 1999](#) (CEPA) amendments
- informal meetings with individual stakeholders

Key informants generally view this engagement as both comprehensive and effective. Program representatives expressed satisfaction with the overall level of external engagement in the Initiative and external key informants expressed satisfaction with the ways in which their organizations were included in the Initiative and the quality of the consultations.

However, the following factors affecting engagement were identified.

Some external stakeholders have relatively more capacity for engagement. Many key informants reported that some external stakeholders – in particular, ENGOs, Indigenous groups and remote communities – are more limited in their capacity to participate in engagement opportunities. Industry is perceived as having greater capacity to engage in the Initiative than other stakeholders and key informants reported more active engagement of industry groups than other stakeholders.

Federal Initiative partners have limited capacity for engagement. Key informants reported limitations on federal capacity to consider more feedback and information shared by external stakeholders and to engage with harder-to-reach stakeholders, such as Indigenous and remote communities, citing the following.

- Some ENGO representatives reported that their organization actively reached out to the federal government to request meetings and share information but had requests turned down.

Nature of external stakeholder engagement in the Federal Leadership Towards Zero Plastic Waste in Canada Initiative

Industry and ENGO engagement includes:

- Participation in consultations and workshops led by Initiative partners
- Provision of commentary on federal plastic waste commitments and Initiative measures
- Implementation of Initiative-funded projects and activities
- Involvement in multi-stakeholder committees and groups (for example, Circular Plastics Taskforce, Canada Plastics Pact)

Academic and researcher engagement includes:

- Participation in expert consultation sessions held by Initiative partners (for example, Best Brains Initiative, Plastics Symposium)
- Contributing expertise to support Initiative development (for example, Plastics Strategy, Initiative monitoring strategy)
- Contributing to Initiative-supported research programs (for example, NCP, Arctic Monitoring and Assessment Program)
- Conducting Initiative-funded research

Provincial and territorial engagement includes:

- Participation in CCME meetings
- Co-hosting of engagement sessions with Initiative partners

- While virtual engagement methods are less costly than other forms of stakeholder engagement, these methods are less available to and less suitable for, Indigenous and remote communities, making engagement of these communities more costly and time-consuming. Additional resources are needed to ensure sufficient outreach to these harder-to-reach groups.

Technological barriers. The federal government has rules in place governing which online platforms federal departments can use for stakeholder engagement. While these rules are not specific to the Initiative, key informants reported that prohibitions on the use of certain online platforms had an impact on Initiative engagement activities—in particular, creating barriers to accessibility for youth and Canadians with impairments.

In light of these factors, key informants suggested that stakeholder engagement could be improved by:

- increasing the capacity (time and resources) of federal partners to carry out engagement
- addressing broader barriers to government use of online platforms for engagement, which are important for ensuring sufficient, ongoing engagement during the pandemic

Key informants also emphasized that continued and substantial engagement of key stakeholder groups, including industry, ENGOs, researchers, municipal governments, Indigenous communities and the medical sector will continue to be essential throughout the Initiative, considering the important role that these groups play in plastic production and waste management.

2.7 Governance

A formal governance structure is in place that supports collaboration among program partners. Opportunities for improving the effectiveness of governance structures were identified.

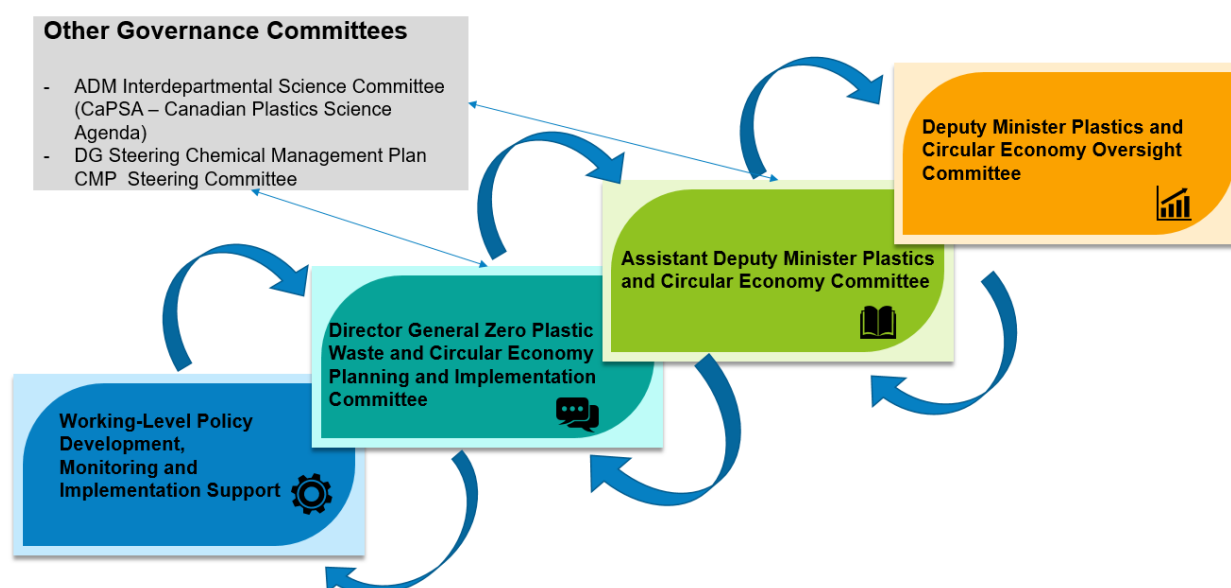
A formal governance structure for the Initiative is in place. To provide strategic oversight and direction for implementation of Initiative activities and support departments in reporting Initiative progress to Cabinet, 3 Interdepartmental Oversight Committees (at the Director General, Assistant Deputy Minister and Deputy Minister levels) were created.²¹ Each of these committees includes representatives from the 5 primary Initiative partners, as well as representation from

²¹ It should be noted that Assistant Deputy Ministers did not see a need to convene the Deputy Minister committee; therefore, no Deputy Minister committee meetings were held over the evaluation period.

many additional federal departments and agencies that have played a supporting role in the Initiative.²²

Additionally, the Oversight Committees interact with other governance committees, including the Assistant Deputy Minister Interdepartmental Science Committee (a working group focused on the Canadian Plastics Science Agenda) and the Director General Steering Chemical Management Plan Steering Committee (see Figure 4). Other structures that contribute to Initiative governance include an Initiative Secretariat; committees designed to guide and oversee implementation of specific Initiative activities (for example, CIRNAC's NCP management committee); committees that link Initiative partners with CCME; and other informal mechanisms that support additional stakeholder engagement.

Figure 4: Governance framework for the Federal Leadership Towards Zero Plastic Waste Initiative



While not all program representatives were aware of the formal governance structure, those who were able to comment generally agreed that it is appropriate, effective and efficient and that it supports positive working relationships among Initiative partners.

Nevertheless, the following opportunities for improving Initiative governance were identified.

²² Other federal departments and agencies represented in oversight committees include: Agriculture and Agri-Food Canada, the Canadian Food Inspection Agency, the Canadian Northern Economic Development Agency, the Canadian Institutes of Health Research, the Department of National Defence, Finance, Global Affairs, Infrastructure Canada, Innovation, Science and Economic Development Canada, Health Canada, National Research Council, Natural Resources Canada, Natural Sciences and Engineering Research Council of Canada, Parks Canada, Public Health Agency of Canada, Public Safety Canada, Privy Council Office, the Social Sciences and Humanities Research Council of Canada, Statistics Canada, Treasury Board Secretariat and the Western Economic Development Agency of Canada.

Share meeting materials well enough in advance of meetings to allow participants sufficient time to prepare. Program representatives reported that, at times, meeting materials were shared with participants only a day in advance of meetings, which did not leave working-level staff sufficient time to adequately brief senior management.

Improve record-keeping procedures. Currently, minutes and records of decision are not systematically prepared following committee meetings or distributed to committee members by the Initiative Secretariat. Program representatives identified a need for improved record-keeping procedures, which includes ensuring that formal meeting minutes and/or records of decision are kept and improving the circulation of records and meeting materials among committee members.

Increase opportunities and support for working-level staff and federal departments that have not received Initiative funding to be engaged in and informed of Initiative activities and decisions. Although working-level support is intended to feed into the 3 Interdepartmental Oversight Committees, some program representatives perceive the governance structure to be “top-heavy,” with limited opportunities for working-level staff to be effectively engaged. Additionally, departments that have not received Initiative funding are perceived as being less able to participate in Initiative governance; despite their interest and the importance of their Initiative contributions, a lack of dedicated funding prevents these departments from devoting time and resources to Initiative governance.

2.8 Performance measurement

A logic model and performance measurement strategy have been developed for the Initiative and performance measurement is occurring. Complexity and the lack of a clear theory of change are challenges to support effective performance reporting.

A logic model has been developed for the Initiative. The logic model consists of a large number of departmental outcomes (n=28), which in turn contribute to horizontal thematic and shared (short-term, intermediate and longer-term) outcomes. There are 6 horizontal thematic outcomes, 2 short-term shared outcomes, one intermediate outcome and one longer-term outcome. While the actual visual logic model was developed by ECCC’s Audit and Evaluation Branch, it is based on the program logic articulated in the program funding documents.

Performance measurement is occurring in a number of ways. Government departments engaged in the Initiative report on milestones achieved and progress on activities on a quarterly basis and do so in a shared tracking document. This includes both departments that were identified in the program funding documents as well as those that were not but that are conducting activities related to zero plastic waste (for example, Health Canada and Global Affairs Canada). ECCC also reports to Parliament and the Canadian public on planned and actual results for the horizontal initiative on behalf of all partner departments through its Departmental Plan and Departmental Results Report.

There are several challenges to performance measurement:

Complexity and scale of activities. The Initiative tracker is a large document and was described by some internal key informants as being difficult to read. A summary dashboard was added to the tracker to try to streamline the information. The tracker covers outputs and quantitative information but little to nothing in the way of illustrations or success stories. As each department is responsible for updating their own “tab,” the level of detail provided varies by department.

Complexity and scale of logic model and performance measurement approach. Despite meeting established requirements, the aforementioned 3 levels of outcomes (departmental, thematic and shared) are likely not required to track and report on Initiative activities and accomplishments. As alluded to above, the focus on departmental outcomes and indicators makes it challenging to obtain a holistic picture of overall progress and achievements.

Lack of a clear underlying theory of change. The thematic approach to organizing the logic model does not clearly convey the core activities of the Initiative. For example, similar activities appear under more than one theme (for example, various types of research or studies appear in Themes 1, 2, 4 and 5). Further, the results logic is not clear. For example, generating information on plastics as well as diverting plastic waste are both considered as short-term shared outcomes despite the fact that plastic waste diversion would more logically follow after information on plastics has had an opportunity to inform policies.

Lack of clarity about how information will be used. The extent to which performance measurement information is used or will be used to inform decision-making is unclear. Some internal key informants noted that the tracking tool allows senior managers to access regular and clear information about various departments’ activities, while others were not sure if or how the tool was informing decision-making.

Duplication. Most Initiative partner departments and divisions have their own internal tracking tools for their activities; the Initiative tracker was found to duplicate some of that work. For example, within departments, teams have their own trackers and reporting requirements.

2.9 Achievement of outcomes

Scientific and socio-economic information on plastics is being generated and there is evidence that it has been used to inform policy.

Generation and use of scientific and socio-economic information on plastics

One of the Initiative’s short-term shared outcomes is that scientific and socio-economic information on plastics throughout their lifecycle is available to inform policy. As a result of the Initiative, significant scientific information on plastics has been generated, as indicated below. Comparatively less socio-economic information has been generated. Examples of scientific evidence include:

- The publication of [Canada's Plastics Science Agenda](#), which created a framework to identify “the priority science needed to [...] address the effects of macro-, micro- and nanoplastic plastic pollution and to achieve a circular economy for plastics.” It is expected that work under the Agenda’s 5 priority themes will support decision-making by providing a larger evidence base for decision-making and will also help to move toward a circular plastics economy.
- The publication of the [Science Assessment of Plastic Pollution](#), which summarized the current state of the science regarding the potential impacts of plastic pollution on the environment and human health and sought to guide future research and inform decision-making on plastic pollution in Canada.
- The funding of **numerous research and pilot projects** to address plastic waste, including through ECCC’s Zero Plastic Waste Initiative G&C projects²³ as well as numerous Plastics Innovation Challenges (described in Section 2.2).
- A Letter of Agreement with ECCC, through which Statistics Canada developed and tested content changes to the Annual Survey of Manufacturing and Logging Industries, the Waste Management Survey and the Households and Environment Survey in order to better measure plastic usage and plastic waste throughout the economy. Using these and other data sources, Statistics Canada was able to produce a **plastic material flow account** that tracks the flows of materials containing plastics in Canada. The [Pilot physical flow account for plastic material, 2012 to 2018](#) was published in March 2022.

There is also early evidence that this information has been used to inform policy. For example, the [Science Assessment of Plastic Pollution](#) identified knowledge gaps in [Canada's Plastics Science Agenda](#) and provided recommendations for specific areas of research to bridge these gaps. In particular, identified gaps included:

- developing standardized methods for sampling, quantifying, characterizing and evaluating the effects of macroplastics and microplastics
- furthering understanding of human exposure to microplastics
- furthering understanding of the ecotoxicological effects of microplastics
- furthering understanding of the effects of microplastics on human health
- expanding and developing consistent monitoring efforts to include the soil

²³ Between 2018 to 2019 and 2020 to 2021, ECCC provided over \$5.2 million to 29 community and citizen science initiatives to remove or prevent plastic waste from entering aquatic environments, and/or increase awareness on the source and distribution of plastic pollution on Canadian coasts and shorelines.

In turn, these gaps informed targeted calls for research projects under a number of funded opportunities, including the Plastics Science for a Cleaner Future fund,²⁴ the IKPP,²⁵ and the NCP.²⁶ The [Science Assessment of Plastic Pollution](#) also provided an evidence base, among other sources, for the [Integrated Management Approach to Plastic Product to Prevent Plastic Waste and Pollution](#), which outlines a number of policy actions and instruments the federal government is implementing or considering in order to address plastic waste and pollution, including a ban on select single-use plastics and other regulations under CEPA, establishing performance standards and ensuring end-of-life responsibility.

The evaluation found a need for additional information on plastics in the follow areas:

- socio-economic information on plastics throughout their lifecycle, including information on the costs of transitioning to an increasingly circular economy
- enhanced research efforts to quantify the contribution of the different pathways for marine plastic litter
- increased data and information on the relationship between plastics, natural resource extraction, fossil fuels, GHG emissions and the current climate crisis

Furthermore, in order to maximize the value of any research produced, research reports and data should be made easily accessible to the public. The government's plastic waste and pollution reduction website, created as part of the Initiative, is expected to help in this regard.²⁷

Diversion of plastics from landfills and the environment

While there is some evidence that plastics have been diverted from landfills and the environment, the total amount of waste diverted or its relative impact on the total amount of plastic waste to date is not available due to data limitations.

The second of the Initiative's shared short-term outcomes is that plastics are diverted from landfills and the environment.

There is some evidence that plastics have been diverted from landfills and the environment as a result of Initiative activities. As noted in a preceding section, a key success has been DFO's [Ghost Gear Fund](#), which has supported the retrieval of more than 6,477 units of gear, totalling over 2.7 million pounds (1,259 metric tons). Further, there is additional project-level evidence

²⁴ In collaboration with NSERC, ECCC allocated nearly \$7 million to 7 research projects that sought to assess the potential effects of nanoplastics on human health, as well as the potential risks that microplastics and plastic additives pose to freshwater and soil ecosystems.

²⁵ In collaboration with Health Canada, ECCC committed more than \$2.2 million to 16 research projects studying the impacts of plastic, microplastic, and nanoplastic pollution on the natural environment and human health.

²⁶ Using both CIRNAC funding as well as transferred funds from ECCC, the NCP has provided \$1.57 million to support scientific studies on plastic and microplastic pollution's impact to the Northern Canadian environment, atmosphere, wildlife, marine mammals, and fish. Funding has also been allocated for community monitoring of plastic pollution's impact on local environments and food sources, and for a community-focused mentorship initiative aimed at empowering youth to research and monitor chemical contaminants and plastic pollution.

²⁷ [Plastic waste and pollution reduction](#). (2022, March 15). Government of Canada.

that plastic waste is being diverted through such activities as shoreline cleanups and textile recycling pilot projects.

However, an accurate and comprehensive accounting of the total amount of diverted plastic waste is not available, which limits the ability of this evaluation to assess the extent to which progress toward this outcome has been achieved.

Further, assessing progress is challenging given data gaps and limitations. However, as noted in a preceding section, the Initiative was designed to build the foundation for future action, especially in light of the limited data and science available on plastic waste and pollution when the Initiative first began. For example, the 2019 economic study by Deloitte estimated that, in 2016, “approximately 10,000 tonnes of plastic waste were mismanaged in coastal areas and nearly 29,000 tonnes across Canada” which led to plastics entering the environment as pollution.²⁸ However, as the 2019 study only considered land-based plastics, there is no clear estimate of the total amount of plastic waste in Canadian waters. This makes it difficult, for example, to understand the relative impact of programs such as the Ghost Gear Fund to the overall scope of the plastic waste problem.

Finally, though the Initiative supported pilot projects that sought to develop new plastic recycling capabilities (for example, for textiles, for fishing rope) and supported studies on the investment needs for recycling infrastructure, the Initiative did little to develop recycling infrastructure in order to address current or future accumulation of plastic waste. However, as such activities were not intended to be covered by the Initiative and given the aforementioned jurisdictional responsibilities for recycling infrastructure, this is better addressed through future activities.

3. Conclusions, recommendations and management response

3.1 Conclusions

Relevance

There is a clear societal and environmental need to address plastic waste and plastic pollution. Plastics are omnipresent in our economy and many end up in landfills or the environment due to factors such as limited recycling infrastructure and limited direct economic incentives for plastics recycling and value recovery. Plastic waste presents harms to the environment, animals and human health. The need for federal leadership is clear, particularly to ensure a Canada-wide impactful approach to addressing plastic waste and pollution. The federal government also has a role to play in pollution prevention and in areas such as promoting greater consistency across the country regarding plastic waste management, fostering greater producer responsibility for plastic waste and end-of-life management of plastic products and responding to and upholding

²⁸ Deloitte and Cheminfo Services Inc. (2019). [Economic Study of the Canadian Plastic Industry, Markets and Waste](#). Environment and Climate Change Canada.

international commitments concerning plastic waste. Initiative activities align well with areas for federal action. However, a multi-stakeholder approach will be required to achieve a circular, zero plastic economy.

Efficiency in implementing the Initiative

Overall, implementation of the Initiative has gone well and most planned activities are either completed or are on track for completion. Some key implementation successes include the publication of the Science Assessment of Plastic Pollution, the provision of approximately \$30 million in G&C to support 135 projects (research, innovation, pollution prevention and remediation, or otherwise) and the amendment of all commercial fishing licences in Canada to include mandatory reporting requirements for lost gear. The COVID-19 pandemic, resource limitations and tight Initiative timelines led to delays or partial implementation of some activities.

The overall design of the Initiative is appropriate. The Initiative's main activity areas are aligned with federal government priorities and responsibilities and no obvious evidence of overlap and duplication with the activities of other jurisdictions was found. Further, the Initiative's approach is comprehensive; activities are designed to address the issue from various angles and at various points along the plastics value chain. The Initiative was designed to build the foundation for future work, particularly in light of the emerging science on impacts of plastic waste and pollution on the environment and the lack of science on the impacts of plastic waste and pollution on human health. Its design was built around a snapshot report commissioned by ECCC (Economic Study of the Canadian Plastic Industry, Markets and Waste, 2019), which noted the lack of data on the Canadian plastics economy and began the work to model what would need to be done to reach zero plastic waste. A number of opportunities for improving the overall coherence and comprehensiveness of the federal government's plastic waste reduction activities were identified, including placing greater emphasis on circular economy and prevention, minimization and reuse policies; placing greater emphasis on public education and awareness; providing additional, ongoing support for funded projects; improving the timeliness and flexibility of funding agreements; expanding the Initiative's role in supporting research; and considering inclusion of additional formal Initiative partners.

GBA Plus was conducted during the design of the Initiative and considered in both stakeholder consultations and the implementation of several activities. As some planned activities related to the Initiative may have differential impacts on certain vulnerable population groups, GBA Plus will continue to be an important consideration for the Initiative going forward

All departments underspent on Initiative activities between FY 2019 to 2020 and FY 2020 to 2021. Several explanations may account for this, including how financial information is reported separately by each partner department, how unused operating funds are not carried over from one year to another, human resource constraints, delays in staffing full-time equivalents, delays or changes to Initiative activities due to COVID-19 and the late release of some funding. Though resources were generally sufficient to deliver planned activities, some departments undertook additional unplanned activities (for example, ECCC having to develop regulations banning single-use plastics, which entailed a listing of "plastic manufactured items" on Schedule 1 of the

CEPA), which meant the department had to reallocate resources internally. Various efficiency measures have been implemented, including shifting resources internally, hosting engagement sessions and events virtually, transferring funds to existing G&C programs and collaborating with existing G&C programs when developing new ones in order to implement best practices. Notwithstanding, there are opportunities for further improvement, including having additional personnel and allowing for multi-year and longer-term contribution agreements. Additional resources are likely required for any future iteration of the Initiative in light of new federal commitments and priorities and emerging issues.

Initiative partners consulted widely with a variety of stakeholders outside of the federal government—including industry, ENGOs, researchers, provincial and territorial representatives and the broader public—in relation to both the design of the Initiative and implementation of certain activities. While this engagement was generally viewed as comprehensive and effective, several factors affected engagement, including the fact that some external stakeholders have more capacity for engagement than others; that federal Initiative partners have limited capacity for engagement; and that there remain technological barriers to engagement. Engagement could be improved by increasing the capacity (time and resources) of federal partners to carry out engagement and by addressing broader barriers to government use of online platforms for engagement.

A formal governance structure is in place for the Initiative. While not all program representatives were aware of the formal governance structure, those who were able to comment generally agreed that the governance structure is appropriate, effective and efficient and that it supports positive working relationships among Initiative partners. Suggestions to improve governance include sharing meeting materials well enough in advance of meetings to allow participants sufficient time to prepare; improving record-keeping procedures; and increasing opportunities and support for working-level staff and federal departments that have not received Initiative funding to be engaged in and informed of, Initiative activities and decisions.

A logic model and performance measurement strategy have been developed for the Initiative and performance measurement is occurring. However, a number of challenges to performance measurement are present, including the complexity and scale both of activities and of the logic model and performance measurement approach; a lack of a clear underlying theory of change; a lack of clarity about how performance measurement information will be used; and duplication of reporting.

Effectiveness

As concerns progress toward the Initiative's short-term outcomes, there is ample evidence that scientific information on plastics is being generated, as well as some evidence that it has been used to inform policy. However, there is a need for additional information on plastics in the following areas: socio-economic information on plastics throughout their lifecycle, including information on the costs of transitioning to an increasingly circular economy; enhanced research efforts to quantify the contribution of the different pathways for marine plastic litter; and

increased data and information on the relationship between plastics, natural resource extraction, fossil fuels, GHG emissions and the current climate crisis.

While there is some evidence of progress toward the Initiative's second short-term outcome (plastics have been diverted from landfills and the environment), the total amount of waste diverted or its relative impact on the total amount of plastic waste to date is not available due to data limitations. For example, while project-level data on the amount of plastic waste diversion is available, an accurate and comprehensive accounting of the total amount of diverted plastic waste as a result of Initiative activities is not available or, in the case of such things as lost gear, is impossible to accurately estimate. Moreover, given data gaps in current understanding of plastic waste, it is challenging to draw conclusions about the relative impact of the Initiative on plastic waste in Canada as a whole.

3.2 Recommendations

The following recommendations are directed to ECCC's Assistant Deputy Minister of Environmental Protection Branch, as the senior departmental official responsible for the Initiative, in collaboration with applicable federal partners.

Recommendation 1

Consideration should be given to including more federal departments and agencies to support Initiative implementation. More formal recognition of and funding for, additional federal partners could improve the coherence and integration of plastic waste reduction measures being undertaken across federal government departments and agencies.

Discussion: Only a few federal departments were tasked with activities under the Initiative and even fewer received dedicated funding to undertake work related to plastic waste and pollution. This limited the extent to which other federal departments and agencies could coordinate and collaborate with Initiative partners. Including a greater number of federal partners – both through formal recognition as well as funding – in any future iteration of the Initiative could improve the coherence and integration of plastic waste reduction measures being undertaken across government.

Statement of agreement or disagreement: The ADM of EPB agrees with the recommendation.

Management response: This evaluation covered the initial funding provided by the Government of Canada to work towards zero plastic waste. 4 departments received funding to conduct work under this first initiative. Between 2019 and 2022, ECCC's outreach to additional departments led to greater participation in interdepartmental committees on zero plastic waste at the Director, Director General, or ADM levels. Participation rose to 18 departments, thereby significantly increasing linkages among federal programs and activities. At the conclusion of the first initiative, Budget 2022 provided funding to 7 departments to continue efforts to advance a circular plastics economy for Canada. To support the effective use of this funding, the interdepartmental committees established under the first initiative will continue to meet, and will also encourage engagement by other federal organizations throughout the next phase of the zero plastic waste initiative.

The forthcoming program funding documents will outline how the next phase of the initiative will be implemented by the 7 federal agencies.

Deliverable(s)

1. Program funding documents

- a. Timeline: December 31, 2022
- b. Responsible party: Environmental Protection Branch - Plastics and Marine Litter Division

Recommendation 2

Assess whether an additional allocation of resources and/or emphasis on prevention, minimization and reuse activities should be made. This is important given the prevalence of plastics in the lives of Canadians and in the Canadian economy and given the current lack of infrastructure for plastic waste recycling.

Discussion: Plastics are ubiquitous in the lives of Canadians and in the Canadian economy and waste management systems and infrastructure are currently insufficient to deal with the volume of plastic waste currently in existence. In order to support a transition to a circular economy, improvements to the Initiative's design and placing greater emphasis on activities that minimize the amount of plastic being generated and circulating within the economy ought to be considered. Though some Initiative activities support prevention, minimization and reuse of plastics, more could be done, including establishing federal targets for reuse, refilling and recycling of plastic containers and packaging.

Statement of agreement or disagreement: The ADM of EPB agrees with the recommendation.

Management response: More work is needed to prevent and minimize plastic waste and pollution, and to increase the reuse of plastics. The focus of the work under the ongoing Zero Plastic Waste Initiative will continue to be based on the hierarchy that is reflected in the universally accepted waste management hierarchy and the Canadian Council of Ministers of the

Environment's Canada-wide Strategy on Zero Plastic Waste. In the coming phase, ECCC will develop a roadmap to encourage product life extension, focusing on reuse and repair. This roadmap will be informed by a June 2021 study commissioned by ECCC on value-retention processes (VRPs): *A Socio-Economic and Environmental Study of the Canadian Remanufacturing Sector and Other Value-Retention Processes in the Context of a Circular Economy*, and a study on the reuse sector. It will complement a federal commitment to implement a "right to repair" to extend the life of home appliances, particularly electronics, through cooperation between ISED and ECCC.

Deliverable(s)

1. Publish a roadmap to encourage reuse and repair of plastic products

- a. Timeline: March 31, 2023
- b. Responsible party: Environmental Protection Branch – Products Division

Recommendation 3

Additional project funding (beyond conceptualisation and piloting phases) should be provided to support bringing successful and innovative practices to scale.

Discussion: The evaluation found strong support by internal and external key informants for Initiative activities that funded the conceptualisation and piloting of innovative practices to address plastic waste. However, it was noted that it can be challenging for new practices to bridge the gap from successfully developing a pilot to entering the market. As such, the federal government could provide additional funding support to help bring successful and innovative practices to scale and do so with the help of partners. For example, ECCC could continue to work with federal departments such as ISED and could establish partnerships with those in the private sector to build on successful pilot projects.

Statement of agreement or disagreement: The ADM of EPB agrees with the recommendation.

Management response: In the first 3 years of the Initiative, federal support advanced the waste reduction efforts of several high plastic waste-generating sectors. Following the Budget 2022 decision to renew the initiative, ECCC will continue to work with the textiles, automotive, packaging and healthcare sectors to reduce their plastic waste to prevent pollution. ECCC is also preparing recycled content regulations. Once these regulations are in place, ECCC will work with Public Works and Government Services and the Treasury Board Secretariat to include recycled content requirements in federal procurement. The overall goal of these measures will be to accelerate the adoption of novel approaches and technologies for decreasing the amount of plastic waste that is generated in Canada.

Deliverable(s)

1. **Support innovative solutions aimed at reducing plastic waste in key sectors, including the textile sector**
 - a. Timeline: March 31, 2027
 - b. Responsible party: Environmental Protection Branch –Plastics and Marine Litter Division
2. **Develop recycled content regulations**
 - a. Timeline: September 30, 2023
 - b. Responsible party: Environmental Protection Branch – Plastics Regulatory Affairs Division

Recommendation 4

Update the current logic model with a view to articulating a clear theory of change and streamlining the complexity of the model and the approach to performance measurement.

Discussion: The current logic model includes more departmental, thematic and shared outcomes than are likely necessary to track and report on Initiative accomplishments. Further, the thematic approach to organizing the logic model does not clearly convey core Initiative activities (for example, similar activities are spread out over multiple themes) and the results logic is not clear. A clearer theory of change, a streamlined logic model and a refined approach to performance measurement could facilitate reporting to Canadians on key accomplishments and outcomes achieved.

Statement of agreement or disagreement: The ADM of EPB agrees with the recommendation.

Management response: A new logic model will be developed for the second phase of the zero plastic waste initiative, which builds on the initial 3 years of foundational work. This logic model will be included in the Horizontal Management Framework for the upcoming program funding documents, based on the outcome of the Budget proposal and approval of program authorities. While the logic model and horizontal management framework will be expanded to include the numerous activities being developed across 7 federal organizations, the logic model will be simplified from the current version to include a clear theory of change that will facilitate measuring and reporting on outcomes.

Deliverable(s)

1. **Logic Model for Advancing a Circular Plastics Economy for Canada, to be included in the program funding documents as part of the required Horizontal Management Framework**
 - a. Timeline: December 31, 2022

- b. Responsible party: Environmental Protection Branch - Plastics and Marine Litter Division

Annex A – Initiative themes and activities

Theme I: Promote sustainable design, production and after-use markets

Thematic outcome: Targeted measures drive sustainable design, production and after-use markets within industry and federal operations

Voluntary government and industry standards and initiatives begin to change plastic product design and production practices. These changes aim to prolong the useful life of plastic products, render them recyclable, reduce the impact of their production and ensure that there are markets for their recycled form. The activities proposed here aim to encourage demand for reusable and recyclable plastics in order to keep plastics in the economy.

Specific activities:

- Establishing a scientific and socio-economic knowledge base to inform regulation, including producing a science assessment (ECCC)
- Developing national standards/performance requirements for sustainable plastics and alternatives (ECCC)
- Developing industry partnerships and voluntary agreements in targeted sectors not covered by extended producer responsibility (EPR) programs to improve plastic product design, production, and/or after-use markets (ECCC)
- Developing a roadmap for single-use and disposable plastic products (ECCC)
- Establishing federal plastic waste reduction purchasing requirements (with Treasury Board Secretariat and PSPC) (ECCC)
- Developing and implementing pilot fit-ups that support the sustainable use of plastics and plastic waste reduction (PSPC)

Theme II: Invest in collection, management and systems infrastructure

Thematic outcomes:

- A. Targeted sectors adopt measures to increase plastic waste collection rates and improve end-of-life management practices
- B. Targeted actions divert plastic waste and ghost fishing gear from aquatic sources

Government measures and voluntary industry initiatives begin to increase plastic waste collection rates and improve end-of-life management practices. Producers of plastic products are not currently responsible for the end-of-life management of their products in a consistent manner across Canada. The activities proposed here aim to increase the supply of plastic that is collected and diverted back into the economy by producers and other economic actors so that it does not end up in a landfill or leak into the environment.

Specific activities:

- Developing a consistent extended producer responsibility (EPR) model program for plastics, with the provinces via the Canadian Council of Ministers of the Environment (ECCC)
- Developing a national roadmap to increase remanufacturing and refurbishing (ECCC)
- Concluding performance agreements with industry sectors not covered by EPR programs that would set specific plastic waste reduction and recycled content objectives (ECCC)
- Expanding abandoned, lost, or otherwise discarded fishing gear (ALDFG) reporting requirements under commercial fishing licences and engaging industry in collection efforts (DFO)
- Equipping Small Craft Harbours in coastal communities with port reception facilities for plastic waste and ghost fishing gear from aquatic sources: Net recycling on the Pacific coast (DFO)
- Equipping Small Craft Harbours in coastal communities as port reception facilities for plastic waste and ghost fishing gear from aquatic sources: ALDFG and marine litter reception locations (DFO)
- Developing marine sector assessments that support plastic waste reduction (TC)
- Implementing the Real Property Plastic Action Plan to reduce plastic waste (PSPC)

Theme III: Promote sustainable lifestyles and education

Thematic outcome: Federal employees in targeted buildings produce less plastic waste

Federal government campaigns encourage employees to produce less plastic waste. The activity proposed here focusses on behaviour change to reduce the amount of plastic waste generated by federal government employees, and, ultimately, to reduce the amount of plastic waste that the federal government must divert or dispose of.

Specific activities:

- Delivering awareness and educational initiatives to federal employees and partners on plastic waste reduction measures in federal operations (PSPC)

Theme IV: Support science, innovation and new technologies**Thematic outcomes:**

- Scientific and socio-economic information on the distribution and impacts of plastics throughout their lifecycle is available
- Government funding drives technological innovation to reduce plastic waste

Baseline waste data, a scientific evidence base and select technological solutions are available to support public and private actions to address plastic waste. The activities proposed here will better inform and enable future actions by all Canadians to keep plastics in the economy and out of the environment.

Specific activities:

- Implementing Canada's Plastics Science Agenda: allocating contribution funds for research projects to eligible organizations (in collaboration with Health Canada) (ECCC)
- Implementing Canada's Plastics Science Agenda: allocating contribution funds to eligible organizations to increase understanding of plastics in the North and research on the ecotoxicological effects of plastic pollution (ECCC)
- Implementing Canada's Plastics Science Agenda: allocating funding for targeted research on priority knowledge gaps relating to the development of methods and standards for the detection of plastics and assessing impacts of plastic pollution (ECCC)
- Administering Canadian Plastics Innovation Challenge (ECCC)
- Developing methodology for measuring plastic usage and plastic waste through Statistics Canada surveys (ECCC)
- Implementing Canada's Plastics Science Agenda: monitoring plastics and microplastics pollution in the Arctic through the Northern Contaminants Program (CIRNAC)

Theme V: Support coastal and shoreline action

Thematic outcome: Plastic pollution is diverted from aquatic environments

Domestic and international plastic pollution prevention and clean-up measures divert plastic pollution from aquatic environments. The activities proposed here focus on preventing plastic from entering and removing plastic from, the marine environment.

Specific activities:

- Delivering community-led and citizen science initiatives to address plastic pollution (ECCC)
- Conducting an assessment of the measures under the International Maritime Organization Action Plan to Address Marine Plastic Litter from Ships (TC)

Theme VI: *Engage domestic and international stakeholders on the circular economy by hosting the 2020 World Circular Economy Forum in Canada*

Thematic outcome: 2020 World Circular Economy Forum attendees are more informed about opportunities for a circular economy

Domestic and international attendees at the 2020 World Circular Economy Forum are more informed about opportunities for a circular economy. This activity aims to extend actions beyond plastics to promote awareness of economic and environmental opportunities associated with a circular economy where materials are kept in the economy and out of the environment.

Specific activities:

- Engaging domestic and international stakeholders on the circular economy by hosting the 2020 World Circular Economy Forum in Canada (ECCC)

Annex B – Evaluation approach

Evaluation issues and questions

The following questions were examined in the evaluation.

Relevance

- What are the needs for federal leadership and activities to reduce plastic waste? What gaps the federal activities are filling?

Efficiency

- Is the design of the Initiative appropriate for achieving the expected outcomes?
 - Are there additional activities and/or partners that could be included to facilitate the achievement of Initiative outcomes or government priorities?
 - To what extent is the Initiative responsive to emerging issues, challenges and developments?
 - Are there alternative approaches that would support a more efficient design and delivery?
- To what extent has gender-based analysis plus been considered in the design of the Initiative?
- Have activities been implemented as planned? What challenges or external factors including COVID have affected the implementation and/or design of the Initiative? How have those been addressed?
- Has the Initiative used resources as planned? To what extent do the Initiative's resources and capacity align with its mandate? How could efficiency be improved?
- To what extent the governance structure supports participation and decision-making?
- To what extent relevant stakeholders (Indigenous peoples, other federal organizations) and partners are efficiently engaged in program design and delivery?
- To what extent quality performance information is available and useful to support the evaluation, ongoing program management and decision-making?

Effectiveness

- To what extent has the program made progress in achieving expected outcomes?
 - Thematic outcomes: Information and awareness
 - Targeted measures drive sustainable design, production and after-use markets within industry and federal operations

- Targeted sectors adopt measures to increase plastic waste collection rates and improve end-of-life management practices; and targeted actions divert plastic waste and ghost fishing gear from aquatic sources
- Federal employees in targeted buildings produce less plastic waste
- Scientific and socio-economic information on the distribution and impacts of plastics throughout their lifecycle is available; and government funding drives technological innovation to reduce plastic waste
- Plastic pollution is diverted from aquatic environments
- 2020 World Circular Economy Forum attendees are more informed about opportunities for a circular economy.

Short-term shared outcomes

- Scientific and socio-economic information on plastics throughout their lifecycle is available to inform policy
 - Plastic is diverted from landfills and the environment
- Have there been other effects from program activities, including group-specific impacts?

Evaluation approach and methodology

Several data collection methodologies were used to address the evaluation issues and questions. Evidence drawn from these methods informed the findings and conclusions.

Document, literature and data review

The document, literature and data review served to develop a thorough understanding of the Initiative and to contribute as a line of evidence to address all evaluation questions. The documents reviewed included key policy-setting documents, program planning and operational documents, performance measurement data, financial information, internal communications, peer-reviewed and grey literature, media coverage and other materials. The literature review component examined other international countries' approaches to addressing the issue of plastic waste, with the primary objective of gathering information on global trends in plastic policies and possible alternatives that ECCC may wish to consider. Relevant information was located through online searches.

Key informant interviews

Key informant interviews were used to solicit informed opinions and observations on the evaluation questions from various stakeholders involved in or familiar with the Initiative. A total of 71 key informants were interviewed, including:

- 42 Initiative representatives including senior managers and staff from the Initiative's 5 primary departments (ECCC, DFO, TC, PSPC and CIRNAC) and other supporting departments and agencies (Health Canada, NRC, TBS, ISED and Statistics Canada).

- 29 interviews with external key informants, including researchers and academics, funding recipients, industry representatives and representatives from ENGOs.

Case studies

We completed 5 detailed case studies, focusing on the following topics:

- federal support to industry
- the Ghost Gear Fund
- office building waste audits
- the role of science and community monitoring
- Plastics Innovation Challenges

Each case study consisted of a document, data and literature review as well as both internal and external key informant interviews. Interview questions relating to the case studies were integrated into the key informant interview guides and all key informants were given the option of addressing these questions.

Annex C – Reference List

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