CCME

Canadian Council of Ministers of the Environment | Le Conseil canadien des ministres de l'environnement

BEST MANAGEMENT PRACTICES FOR DISPOSAL BANS, LEVIES AND INCENTIVES FOR END-OF-LIFE PLASTICS

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NOTE TO READER

This document is based on an unpublished report prepared under contract to CCME by Giroux Environmental Consulting and has been revised and edited by CCME's Waste Reduction and Recovery Committee. CCME would like to thank the individuals and organizations who contributed input and expertise during the development of this work.

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GLOSSARY OF TERMS

Contaminated	When recyclables or organics are mixed with residual waste (garbage) or when waste is mixed with recyclables
Best management practice	A management approach or protocol undertaken that has been more effective compared to other approaches implemented (by a municipality, regional government, provincial or territorial government, or national or international organization) with direct experience in the management approach
Distribution ban	A regulated restriction on the sale or distribution of specified items within a jurisdiction
Downstream	End-of-life management: typically referring to disposal
Lifecycle	Consideration of the entire life of a product or package from design and manufacture, through to use and recycling and disposal
Pay-as-you-throw	A system where a waste generator is charged for the volume of waste produced rather than a flat fee per household
Point-of-sale	Action taken (e.g., a fee added) when an item is purchased
Procurement	The purchase of supplies, services or goods by a government department or large business.
Residuals	Waste left over after recyclable or organic materials have been removed from recyclable or organic materials collected
Source separate	To separate items that are recyclable or compostable from items that are not recyclable or compostable by a waste generator (consumer, household, or place of business)
Tip fee	The price charged for a waste hauler to dump a load of waste at a waste facility
Upstream	Beginning of product life cycle: design and manufacture stage

LIST OF ACRONYMS

CCME	Canadian Council of Ministers of the Environment
CE	Circular economy
CUSMA	Canada-United States-Mexico Agreement
DRS	Deposit return system
EPR	Extended producer responsibility: a manufacturer or brand owner of a product or package is physically or financially responsible (or both) for the management of that product or package at end-of-life
EU	European Union
HDPE	High-density polyethylene
ICI	Industrial, commercial and institutional
LDPE	Low-density polyethylene
PAYT	Pay-as-you-throw
PE	Polyethylene
PET	Polyethylene terephthalate
PP	Polypropylene
UNEP	United Nations Environment Programme

1.0 INTRODUCTION

1.1 Background

The Canadian Council of Ministers of the Environment (CCME) is the primary minister-led intergovernmental forum for collective action on environmental issues of national concern. The 14 member governments of Canada work as partners in developing consistent environmental standards and practices to be implemented across the country.

Environment ministers are committed to taking action within their jurisdictions to continuously improve Canada's record on reducing waste. In 2019 CCME Ministers approved Phase 1 of the *Canada-wide Action Plan on Zero Plastic Waste* (the "Action Plan") (CCME 2019) as a first step to implementing the *Strategy on Zero Plastic Waste* (CCME 2018). One of the key action items within the Action Plan is to develop guidance on best management practices for governments that are considering the implementation of disposal bans for end-of-life plastics. This document identifies best management practices for disposal bans targeting end-of-life plastics and complementary or alternative approaches to manage plastic waste (e.g., extended producer responsibility [EPR]), along with supporting economic and other incentives as part of priority action 4 of phase 1 of the Action Plan.

1.2 Definitions and Scope of This Document

1.2.1 Definitions Used in This Document

The following definitions were developed specifically for this document and have not been formally adopted by any specific organization.

Best management practices are management approaches or protocols that have been shown to be more effective compared to other approaches (by a municipality, regional government, provincial or territorial government, or national or international organization) through direct experience.

Regulatory instruments are instruments with the force of law (e.g., laws, regulations, by-laws) made by a legislative power under an Act of a government. A regulatory instrument usually includes a penalty or fine for violations.

Economic instruments provide important market signals that can influence the behaviour of producers, consumers, businesses and waste generators. They can include fees, levies or taxes as disincentives, as well as incentives such as deposit return systems (DRSs), where a consumer receives a partial or full refund of a deposit when they return the item to a recycling depot.

Voluntary instruments are other incentives that are largely implemented by non-government sectors, such as the private sector or industry associations, and include non-regulatory methods to influence waste generator behaviour to achieve a desired objective.

1.2.2 The Scope of This Document

This document identifies the best management practices that support the implementation of disposal bans targeting end-of-life plastics from both the available literature and from jurisdictions with experience in disposal bans. The plastics of interest include all plastic products such as durable and semi-durable plastic products, single-use plastics and plastic packaging. The document presents a toolbox of options that have been shown to work in some jurisdictions (e.g., a municipality, regional government, province, territory, state or country). If a management practice has been identified for a specific type of plastic, it is noted; however, this document is not intended to provide lists of recommended plastic materials for each instrument.

This document is not a prescriptive "how-to" guidance document, but rather a toolbox of options. Every jurisdiction is different in terms of its location, size, infrastructure, existing programing, political engagement and existing waste policy situation. For this reason, the generic suite of instruments described in this document can be adapted by governments to suit their own situations, using the supporting details and lessons learned as guidance.

Prior to implementing disposal bans and any of the measures described in this document, it is a best practice for jurisdictions to undertake analyses and consultations aimed at understanding the socio-economic impacts of any measures being considered. These exercises give as complete a picture as possible of impacts and benefits, and of challenges for implementation. For disposal bans, this could translate into addressing implementation and operational challenges, such as the time necessary to plan and build additional resource-recovery systems to handle banned materials, barriers to ensuring adequate resource-recovery capacity is in place for banned materials, and capacity challenges for rural, remote and northern communities. These analyses may require a rigorous understanding of baseline data for proposed banned materials, including analyses related to the amount of material in the marketplace now and in the future; current and projected waste generation and composition; and current and future planned resource-recovery capacity to address the proposed ban. Governments may wish to announce an impending disposal ban well in advance to allow for markets to develop, allowing for sufficient supply and demand prior to the ban taking place. This would allow industry to respond when a material is ultimately banned.

Each of the best management practices includes the factors that lead to success, benefits of the practice, challenges associated with the practice and with compliance monitoring, how the approach is best implemented, what materials the instrument is best suited for, and which complementary policies contribute to success. Where information is available, additional details are included, such as promotion and education activities that contribute to success.

2.0 REGULATORY AND POLICY INSTRUMENTS

2.1 Disposal Bans: Overview

A disposal ban is a regulatory instrument that is applied across a jurisdiction such as a municipality, regional administrative area, province, state or territory. It stipulates that specific materials, packaging or products are not accepted for disposal within that jurisdiction or are only accepted at designated disposal facilities. A ban can be implemented at disposal facilities, or at the curbside or place of business. Often, disposal bans include a specific list of items, products or materials that are not accepted at the disposal facility. The most common examples of disposal bans across Canada include those on hazardous materials such as asbestos, batteries, biomedical waste, antifreeze, flammable materials, clean or treated wood, electronics, gypsum, hazardous waste, oil containers, pharmaceuticals, tires, and mercury-containing thermostats. Banning organic food waste from landfills has also become more common in recent years in some jurisdictions (e.g., Nova Scotia).

Disposal bans have not been applied as widely to plastics. However, some jurisdictions have used disposal bans for plastic packaging such as used oil containers and some food packaging, as well as products that contain plastics, such as electronics. The province of Nova Scotia and many regional governments in British Columbia (BC) have implemented landfill bans on electronics and tires (both of which contain durable plastic components), as well as #1, 2, 4 and 5 plastic containers, takeout plastic food containers, jugs, tubs, bottles, lids and clamshell containers. Some BC jurisdictions have also implemented landfill bans on coffee pods, plant pots and trays, microwavable plastic bowls and cups, and unnumbered rigid plastic packaging. In Québec, the *Regulation on landfilling and the incineration of the residual materials* bans tires from landfills in all the territory, except the northern and isolated communities. Although this list is not comprehensive, it is indicative of the activity around applying plastic-specific disposal bans in Canada.

If a province or territory implements a disposal ban, a regulation will be developed outlining requirements and restricted materials. The regulation usually authorizes municipalities within the jurisdiction to develop bylaws to support the ban. These bylaws contain local requirements preferred by the municipality. For example, some bylaws require waste generators to source separate their wastes to be compliant with the ban.

2.2 Benefits of Disposal Bans

The benefits of disposal bans (Regions for Recycling 2014; OWMA 2015) generally include:

- a decrease in waste sent to landfills, which also extends the life of the landfills
- an increase in the volume of materials diverted from disposal, which secures a higher volume of recyclables for secondary processing and organics for composting

- an improvement in the quality of recyclables sent for processing and organics sent for composting, if the disposal ban includes more stringent source separation requirements, which typically results in uncontaminated recyclables and organics (i.e., recyclables and organics that are clean and not mixed with garbage)
- positive impacts on economic development from the establishment of new recycling and composting/digestion industries and local employment, driven by the higher volume of recyclables and organics collected and the long-term security of having this resource stream available for reprocessing
- reductions in greenhouse gas emissions from materials being deposited in landfills and decomposing over time
- better use of resources by society, since the ban sends the correct signal to not continually consume more resources in a linear fashion; this signal supports the circular economy.

The potential benefits of disposal bans may not be fully realized because implementing these bans also presents extensive challenges.

2.3 Challenges of Disposal Bans and Best Management Approaches

Jurisdictions with experience implementing disposal bans have identified many challenges with ensuring compliance (OWMA 2013; Regions for Recycling 2014; personal communications[1]). These challenges can be categorized as either relating to planning and drafting the scope for the regulations or implementing the regulations.

Challenges in regulation design and scope:

- Scale of application: deciding whether to design the regulation to apply at the provincial and territorial, regional or local scale can create issues with waste exporting (i.e., unwanted waste being sent to local areas with less stringent requirements).
- Designated stakeholders: determining whether the regulation should directly designate specific stakeholders along the entire chain of custody of waste. These stakeholders could include waste collectors and waste haulers, public and private transfer stations and disposal facilities, as well as both residential and industrial, commercial and institutional (ICI) waste generators. In considering which stakeholders to designate, jurisdictions must consider which other regulations might support implementation (e.g., commercial building leases in provincial/territorial landlord and tenant legislation, provincial/territorial building codes, or waste hauler license systems).
- Designated stakeholder obligations: establish whether to designate specific obligations (such as sorting banned materials from residual waste) for waste generators from all sectors

[1] Personal communications with Erin Blaney of the Regional District of Kitimat-Stikine; Laurie Lewis of Halifax Regional Municipality; and John Hughes of Prince Edward Island Department of Environment.

(to ensure a level playing field) or only certain sectors (e.g., sectors with higher waste generation).

- Developing complementary programs: considering that applied in isolation, disposal bans might not be as successful as they would be with complementary programs in place (e.g., supporting EPR regulations, procurement policies, waste-reduction goals, or promotion and education program funding tied to diversion performance, etc.).

Implementation challenges at the point of collection:

- Ensuring that alternative management practices and the required infrastructure, programming and policies (e.g., recycling, composting and reuse) are available for materials banned from disposal, which will minimize the risk of illegal dumping.
- Compliance monitoring for single-family residences to identify plastics that are hard for collectors to detect at the curbside.
- Compliance monitoring for multi-family residences, public places (e.g., parks) and public events (e.g., festivals), where communal bins are used to sort waste, recyclables, organics and banned materials. In some instances, there are no requirements for the multi-residential sector, public places or public events to source separate waste, organics, recyclables or banned materials. This may induce environmental pollution by plastics (in the case of events) or a poor management of plastics (in the public places that present no alternative to separate recyclables).

Implementation challenges at the point of disposal facility or transfer facility:

- Compliance monitoring for the ICI sector, which uses commercial haulers for collection and disposal. Transfer or disposal facility operators cannot detect small, banned items such as plastic containers in large loads. It is a challenge to ensure that disposal facility operators (or transfer stations) can consistently implement compliance-monitoring protocols for incoming loads from all haulers so that the facility is not in contravention of the regulation, especially when the disposal facility does not have control over how the hauler's customers have sorted their waste.
- Determining how to ensure that haulers do not export waste to a neighbouring jurisdiction that does not have disposal bans when they know they have noncompliant loads. This challenge occurs during the implementation of a disposal ban, but it is tied to planning the scope and obligations written into the disposal ban bylaw or regulation.
- Enforcement costs can be high if the focus is on regulatory enforcement through legal fines.

Exhibits 1, 2 and 3 on the following pages present these challenges along with potential management approaches. The management approaches have been identified from jurisdictional experience as well as experts in the waste sector (Eunomia 2012; Metro Vancouver 2019a; Metro

Vancouver 2019b; OWMA 2013; Smart Prosperity Institute 2019; personal communications[2]). Note that no "model" best management practices exist to ensure 100% successful implementation of disposal bans. Rather, these potential solutions to challenges have been identified based on information from jurisdictions with experience in applying this instrument. Every management approach may not be suitable for all jurisdictions (which each have different infrastructure, legal authorities, waste policies and programming, etc.).

A general indication of potential resource requirements from a provincial, territorial or municipal government when implementing each best management practice is included in the middle column of the exhibit to suggest whether the anticipated time involvement and/or resource cost would be high, medium or low. It is meant to be a relative comparison across practices in the table, not to quantify actual costs.

Exhibits 1-3 present the following information:

- Exhibit 1 presents an overview of the key challenges associated with planning and developing regulations for disposal bans.
- Exhibit 2 presents an overview of the key challenges associated with implementation aspects of disposal bans in the residential sector.
- Exhibit 3 presents an overview of the key challenges associated with implementation aspects of disposal bans in the ICI sector, including options for compliance monitoring and enforcement at transfer stations or disposal facilities.

Exhibit 1. Key challenges and best management approaches: disposal ban regulation design

Challenge	Resource Cost	Best Management Approach
Fairness in application of an enabling regulation on a local, regional, provincial or territory-wide scale: There is a risk of waste being exported outside the jurisdictional boundary if neighbouring jurisdictions do not have the same ban in	High upfront (Regulation Design)	Ensure the enabling regulation is applied either jurisdiction-wide at a provincial or territorial level, or at a regional scale, where it is applied consistently to multiple municipalities within a region. If some local governments implement disposal bans there is a risk of waste being exported to a neighbouring community that does not have disposal restrictions in place. A best management approach is to have a consistent regulatory framework across an entire province, territory, state or region so that all municipalities within that province, territory, state or region have the same disposal restrictions in place.
	High upfront (Regulation Design)	Flow control policy or service area designations. A flow control policy either requires the delivery of materials to specific facilities or disallows the delivery of materials outside a specific boundary (e.g., a municipality, a regional district, or a province or state). Flow control can be written into a supporting bylaw or regulation. However, there have been legal challenges across the United States in the waste industry when flow control measures have been implemented. A type of flow control policy is seen as beneficial when used to support the

[2] Personal communications with Erin Blaney of the Regional District of Kitimat-Stikine; Laurie Lewis of Halifax Regional Municipality; John Hughes of Prince Edward Island Department of Environment; and Duncan Bury of Duncan Bury Consulting.

Challenge	Resource Cost	Best Management Approach
place. This can sometimes occur where one municipality has a disposal ban but its neighbouring municipalities do not.		implementation of disposal bans to ensure that all waste haulers are subject to the same disposal bans and cannot simply transport waste from a municipality with a disposal ban into another municipality that does not have a disposal ban, thus circumventing the regulation. It is uncertain if flow control can be implemented in all jurisdictions at a provincial or territorial level, as a ban on waste export could result in a CUSMA panel challenge that waste facilities may be treated differently depending on where they are located.
	High upfront (Regulation Design)	Regionalization for small or remote communities. When waste management and recycling/organic collection and processing occur on a regional scale (e.g., where designated regions made up of multiple municipalities and communities are responsible for collection and primary processing) rather than locally, they allow enhanced efficiency and sharing of infrastructure. The costs and logistics of managing materials banned from disposal can be optimized at a larger scale than in smaller localized service areas. Regionalization is considered a best practice, especially in rural areas with smaller populations.
Ensure the ban applies equally to waste generators from all sectors: Many recycling and organics programs and regulations apply only to the residential sector, which does not allow for a level playing field, since the ICI sector is responsible for a larger volume of waste compared to the residential sector.	High upfront (Regulation Design)	Legal framework: designate source-separation requirements for all generators. Planners must ensure that a regulation includes requirements for all sectors of waste generators, and specifically designates ICI as well as residential sectors to source separate banned materials. In many jurisdictions, the residential sector has had more waste-separation requirements compared to the ICI sector, while the ICI sector tends to produce a much higher volume of waste. Specifying requirements for ICI stakeholders has been shown to ensure a level playing field across all waste generators; maximize the materials diverted from disposal because the ICI sector is a larger waste generator; contribute to keeping costs low because transfer and disposal facilities will not require specialized source-separation technology or equipment; and result in a higher quality of collected materials for recycling and composting (jurisdictions using mechanical waste separation post-collection have found technologies are expensive, unreliable and may not produce high-quality separated recyclables or organics).
Ensure that obligations apply to all stakeholders: Obligations that are not equally applied to public and private disposal facilities, transfer stations, waste generators and	High (Regulation Design)	The enabling regulation could obligate all parties in the chain of custody of the waste, not just the disposal facility. The enabling regulation could designate the same requirements for all waste generators, waste haulers, waste transfer and disposal facilities (public and private). Examples of designations that would improve the enabling regulation include: • Waste hauler licensing could be required by the provincial, territorial, regional, or municipal government (depending on the jurisdiction, municipal bylaws might be better for this task). Haulers could be obligated to ensure their ICI customers source separate their waste (e.g., by providing proper bins, and instructions, or by signing off — see Exhibit 3 for details).

Challenge	Resource Cost	Best Management Approach
haulers create an imbalance.		• Provincial, territorial or municipal commercial tenant and landlord legislation or bylaws could require leaseholders to source separate waste, including banned materials. • Building code legislation or bylaws could require multi-unit buildings to source separate waste, including banned materials. • Transfer or disposal facilities could implement standard inspection protocols for waste inspection to support their obligation to not allow banned materials in the landfills (see Exhibit 3 and Appendix A for further detail).
If a disposal ban is implemented in isolation, it may not be as successful as it could be if it were implemented with other programs that support the same objective.	Complementary programs are important to the success of disposal bans. The most important complementary programs identified are:	
	Medium upfront (if EPR legislation exists); low long-term; responsibilities transferred to private sector	• EPR programs: Considered a key policy approach that supports disposal bans, EPR programs can be either mandatory or voluntary. Under an EPR program, companies making products are responsible for end-of-life management of their products and/or packaging. This obligation removes the responsibility to find markets for collected materials from municipal governments and places it on producers, which in turn drives design changes and enhances the recyclability or compostability of materials on the market. See Section 2.5.1 for a description.
	Medium upfront; low long-term	• Distribution bans: These instruments can enhance the success of a disposal ban by limiting the availability of the material on the market in the first place, leading to substantially fewer requirements for end-of-life management options. Distribution bans drive changes upstream in the waste-management hierarchy of reduce, reuse, recycle, compost rather than downstream at end-of-life. See Section 2.5.2.
	Medium	• Economic instruments: These can also be complementary to disposal bans, including the use of levies and DRSs. See Section 3 for more information.

Exhibit 2. Implementation challenges and best management approaches to monitor compliance with disposal bans in the residential sector

Challenge	Relative Resource Cost	Best Practices to Mitigate Challenges in the Residential Sector
Alternatives: Prior to implementation, it is important to have alternatives in place for the banned materials. Otherwise, there is a risk of illegal dumping.	High upfront; low long-term; responsibilities transferred to private sector if using EPR	Convenient recycling and composting programs should be in place for all banned materials. Bans for recyclable and compostable materials should be implemented only when an alternative system is in place to collect, return, recycle or compost and divert the banned materials. Although availability of materials due to a disposal ban can create the opportunistic conditions to create markets where none existed before. Convenient recycling and composting reduce the incidence of illegal dumping. Communicating these alternative destinations through an extensive promotion and education campaign is key.
	High upfront; low long-term; responsibilities	Ensure sufficient time to identify markets for banned materials. Either identify markets in advance for banned materials to be collected by municipal recycling and composting programs, or, in the case of EPR programs, ensure brand owners have sufficient time to develop a

Challenge	Relative Resource Cost	Best Practices to Mitigate Challenges in the Residential Sector
	transferred to private sector if using EPR	market for the material (or change the design to be more recyclable or compostable). Having markets available for materials that will be banned from disposal will lessen the risk of waste exporting because the banned materials can be recycled or composted locally (and therefore, there is no need to look elsewhere to manage the waste). For example, certain plastics (such as PET as well as HDPE) tend to have more readily available markets than others (such as LDPE). Plastic recyclers would benefit from long-term contracts with local governments or producer responsibility organizations (depending on who has responsibility for recycling). The security of long-term marketing contracts leads recyclers and composter to invest in equipment upgrades, which in turn enhances recycling and composting.
	High upfront during regulation drafting	Jurisdiction-wide consistency in banned materials accepted in recycling and composting programs. Requiring consistent recycling and composting programs for all municipalities within a province or territory (e.g., the same materials are accepted for recycling or composting in every municipality in a province) is important for success in increasing diversion across a province and in reducing the potential for illegal dumping.
	High upfront during regulation drafting	Jurisdiction-wide consistency in the application of the disposal ban. Apply the disposal ban jurisdiction-wide so all regional authorities and all municipalities must implement it. This establishes a level playing field (see Exhibit 1 for more information).
Compliance monitoring of the single-family housing residential sector by waste collectors is a challenge for disposal bans, as small materials are hard to spot in a bag of residual waste.	Medium	Mandatory use of transparent bags for the residential sector has worked well in some smaller jurisdictions. A regulation that requires mandatory use of clear bags in the residential sector enables waste collectors to visually check each bag as they collect it. If any banned materials are visible in the bag, it is not collected. This approach is used by Halifax Regional Municipality. In addition, the province of Prince Edward Island has banned the use of non-transparent black (or dark-coloured) garbage bags to facilitate the ease of inspection by curbside collectors. This practice may be easier to implement in smaller municipalities and in municipalities with few multi-residential buildings. It may not be ideal for very large municipalities that already have automated cart collection infrastructure equipment in place.
	Medium	Use of communication tools to clearly identify the reason why noncompliant waste was not collected, such as affixing a sticker to a bag or bin. The sticker should indicate that the bag or bin contains recyclables and/or compostable materials banned from disposal and should note what must be done to ensure proper sorting of recyclables, organics and residual waste and comply with disposal restrictions. This approach has increased compliance in jurisdictions such as the Regional District of Kitimat-Stikine, BC, as well as Halifax Regional Municipality.
	High	Random waste audits of curbside waste. If noncompliant waste is identified in bags or bins, letters can be sent directly to residents. This approach has increased compliance in jurisdictions such as the Regional District of Kitimat-Stikine, BC, as well as Halifax Regional Municipality.
	High	Extensive promotion and education for the residential sector to explain the ban and how banned materials should be recycled and/or

Challenge	Relative Resource Cost	Best Practices to Mitigate Challenges in the Residential Sector
		composted. An information campaign tells residents that if banned materials are identified in their residual waste bins or bags, they will not be picked up. An education campaign should also include communication stickers that explain why waste was not collected, including multilingual stickers as appropriate for the target population(s). Halifax Regional Municipality is unique in that its landfill ban regulation authorized a third-party nonprofit to conduct outreach and education services on waste diversion and reduction. This service is provided to both the residential and ICI sectors.
Compliance monitoring of the multi-family housing residential sector by waste collectors is the single biggest challenge for communal disposal bins. Compliance monitoring for public places (e.g., parks) and public events (e.g., festivals) are challenges for communal bins.	High upfront; low long-term	Provincial/territorial building codes should be amended to require source-separation infrastructure in all multi-unit buildings. These revisions could include rules for both new and existing buildings, as well as requirements for bins, signage in multiple languages and lists of banned materials. Promotion and education of best practices targeted to the multi-family housing sub-sector and its building managers along with public places and public events and their managers. Best management practices identified are: • Locate recycling or composting bins and residual waste bins together in communal areas, ensuring that bins for recycling organics and diversion of banned materials are equally convenient to disposal bins. • Multilingual posters and clear labels on bins are vitally important in large urban areas. • Targeted education and outreach for multi-family building managers and managers of public places and public events. Managers of multi-family buildings, public places and public events have existing communication avenues to communicate building and space-related information to their residents, users and participants, and these avenues can be used to secure high participation with the right information and tools. • Governments could further support this sector by providing stickers and signage for the communal bins.

Exhibit 3. Implementation challenges and best management approaches to monitor compliance with disposal bans at transfer and disposal facilities

Challenge	Relative Resource Cost	Best Practices to Mitigate Challenges at Transfer / Disposal Facilities
Compliance monitoring of the ICI sector by haulers is a challenge for disposal bans, as small materials are hard to spot in a load of waste.	High upfront during regulation drafting; low long-term; responsibilities transferred to haulers	Regulations can require ICI waste generators to source separate recyclables, organics and banned materials from residual waste using separate bins. When the ICI waste generator is obliged to use separate containers for separate collection of materials banned from disposal, it allows for easier inspection by haulers upon collection. Similarly, private haulers can be required to inform their clients of the disposal ban and the material separation required to comply with it. Another option to facilitate compliance is to require ICI generators to "sign off" that their materials have been source separated prior to collection. Technologies to facilitate this verification step are

Challenge	Relative Resource Cost	Best Practices to Mitigate Challenges at Transfer / Disposal Facilities
Putting this responsibility on haulers might be a new concept in some jurisdictions.		available via handheld devices (similar to systems used by delivery drivers for packages that require a signature).
	High upfront during regulation drafting; low long-term; responsibilities transferred to haulers	Regulations can authorize or regulate waste haulers to not collect waste from ICI waste bins if they contain banned materials. Haulers should be specifically obligated as a key component in the waste chain of command. With source-separated materials, haulers can simply visually inspect a load. If there are any visible banned materials in the bin, it should not be picked up. Governments can support haulers by providing a standard notice letter outlining why the residual waste was not collected. This notice can include a series of checkboxes and provide contact phone numbers and website resources for the ICI generator to consult and determine what they need to do to become compliant.
	Medium	Conduct hauler education workshops. Halifax Regional Municipality conducts outreach workshops with waste haulers to educate them and provide guidance on what should be source separated and how to improve source-separation compliance from their ICI customers.
	Medium ongoing review of applications and plans	Require all ICI business license applications to include a recycling and/or composting plan. Some municipalities require haulers to apply for, or renew, annual business licenses. The license application must include a recycling and/or composting plan that provides information on who handles the business' waste and how much it recycles or composted. A municipality can provide a standard form or checklist to assist businesses in meeting this requirement. For example, the city of Vancouver requires that businesses declare at the time they apply for a business license (or to renew a license) whether they have a materials diversion plan in place for organics. Those that do not have a plan in place are subject to follow-up compliance promotion activity. A similar requirement could be in place for designated banned materials.
Ensuring ICI haulers do not export waste to a neighbouring jurisdiction if they have a noncompliant load.	High	Flow control policy and service area designations. A flow control policy requires the delivery of materials to specific management facilities or disallows the delivery of materials outside a specific boundary (e.g., a municipality, regional district, or province). Flow control can also be written into a supporting bylaw. A flow control policy is a best practice when implemented on a regional or municipal level. A similar approach is to assign a "service area" designation to all disposal facilities within a given jurisdiction or region. In this approach, a disposal facility accepts materials that are generated within its defined service area but not materials generated beyond those borders.
	High	Use tracking systems. In a jurisdiction with a flow control policy to reduce waste exporting, modern technology allows for tracking systems that can help determine where waste is picked up and transported. In such a system, if waste is transported to a disposal facility outside of a designated service area, potential penalties include surcharges or fees to the hauler or the business that contracted the hauler. This approach is taken in Flanders, Belgium, where tracking systems record the export of materials that are banned from disposal.

Challenge	Relative Resource Cost	Best Practices to Mitigate Challenges at Transfer / Disposal Facilities
Compliance monitoring at the transfer or disposal facility is a challenge for disposal bans, as these small materials are hard to spot in a load of residual waste.	Low (disposal operator responsibility)	Operating authorities or disposal facilities can conduct visual inspections of incoming loads at disposal facilities to monitor compliance, and they have the authority to charge an extra fee or reject the load completely for non-compliance. Visual inspections can be conducted a variety of ways, with many examples identified by jurisdictions with disposal bans in place. Halifax Regional Municipality uses a guideline document where all incoming loads at the transfer station are visually inspected using a checklist. See options below for various approaches to inspection and compliance. Option 1: Designated threshold of contamination. Select a number of loads to visually inspect, as appropriate for the jurisdiction. A smaller jurisdiction might be able to visually inspect 100% of incoming loads, while a larger jurisdiction might visually inspect 25%. Use a designated threshold for a waste load contaminated with banned materials and apply a surcharge penalty if the threshold is obviously exceeded. In this option, the compliance monitoring inspector at a disposal facility or transfer station will allow a small amount of banned materials in a load. If the amount of banned materials in a load appears to exceed this threshold based on visual inspection, the load would have a penalty surcharge. A set number of loads received at Metro Vancouver and City of Vancouver disposal facilities are visually inspected for banned materials, and surcharges are levied if banned materials are present beyond thresholds defined in the Greater Vancouver Tipping Fee Bylaw (in Metro Vancouver, this visual inspection is conducted on 25% of all loads annually). Metro Vancouver publicly reports on the results of its compliance monitoring program with the absolute number of loads inspected, percentage deemed noncompliant, and the number of surcharges applied annually. Surcharge penalty examples: • In Nanaimo, BC, loads containing 5% to 10% of banned materials are subject to a surcharge equal to twice the normal tipping fee. • In Metro Vancouver, BC, loads containing over 20% of expanded polystyrene packaging are issued a surcharge of 100% of the tipping fee. Loads containing over 5% of beverage containers can be subject to a surcharge. Metro Vancouver reports annually on the results of its disposal bans. Over $300,000 in annual revenue is generated from the disposal ban surcharge instrument, mostly from ICI waste haulers. About 9% of loads disposed of in 2018 contained banned materials. The 2018 report indicates that when a new material is added to the banned list (such as polystyrene in 2018), there are frequent surcharge infractions on the new material for a few months, and these tend to subside with consistent messaging and education. Expanded polystyrene accounted for 1% of surcharges in 2018. The Metro Vancouver bylaw allows haulers to dispute the surcharges by completing a dispute form within 30 days of the charge being issued. There were 17 surcharge disputes in 2018, out of 3,500 surcharges laid, so it appears not very many haulers choose to dispute their noncompliant loads.

Challenge	Relative Resource Cost	Best Practices to Mitigate Challenges at Transfer / Disposal Facilities
		Option 2: Load rejection if any contamination is observed (if any banned materials are in the waste, the load is not accepted). Do not allow any amount of banned materials in a load, based on visual inspection (i.e., set the expectation threshold to 0%). This approach is used by Halifax Regional Municipality in Nova Scotia. Option 3: Notification letters of non-compliance along with Option 1 or 2. Transfer station or disposal facility operators can provide a standard-issue letter to a hauler to notify them that they need to improve their source-separation practices and ensure their customers are source separating banned materials. The disposal facilities should keep records of non-compliance, so they know which haulers to inspect closely and regularly.
	Medium	Operating authorities or disposal facilities can require a permit for dumping a load over a specified size, and all large loads will require inspection for compliance. For example, any waste loads greater than $5m^3$ require permits from the regional government, with waste source(s) identified. A full visual compliance inspection is conducted on 100% of permitted loads of this size in the Regional District of Kitimat-Stikine, BC, which is a small regional district with a low population.
Enforcement costs can be high if the focus is on regulatory enforcement through penalties.	High (government legal costs for issuing penalties)	Provincial government inspectors will fine or penalize disposal facilities that are found to be noncompliant. Typically, legislation allows for significant penalties in the form of fines of thousands of dollars to be issued to noncompliant disposal operators. Some jurisdictions exempt a disposal facility from being penalized, provided the operating authority takes specified actions to implement the material disposal ban. For example, if the operator demonstrates that they are working with haulers to improve compliance (e.g., recording noncompliant loads by specific haulers, documenting letters provided to noncompliant haulers to outline how to become compliant). Jurisdictions that have experience with disposal bans reserve the use of fines as a last resort.
	Low	Standard protocol for load inspection for disposal facilities. The best management practice to avoid the use of penalties is through the use of a standard load inspection checklist developed by a disposal facility operator. This could be a one-page checklist that facilitates the ease of inspection of each load. See Appendix A for an example.

2.4 Promotion and Education Activity for Disposal Bans: What Works Best?

All jurisdictions that have implemented disposal bans emphasize the importance of promotion and education. Specifically, experienced jurisdictions note that linking a material disposal ban's promotion and education activities with a compliance and enforcement component builds support for recycling, composting and alternatives to disposal within the community over time. The promotion and education activities lead residents to feel more comfortable changing to the new management system before it is implemented. Continuing promotion and education activities

following implementation continues to build awareness of the objective of the ban, thereby increasing participation and compliance among all sectors and minimizing the potential for pushback from individuals or sectors that may not understand or agree with the materials disposal ban or alternative management approaches. Massachusetts, Metro Vancouver and Nova Scotia have linked high compliance rates with their dedication of resources to ongoing promotion and education activities.

Exhibit 4 presents the best management approaches in promotion and education activities for disposal bans during planning or after implementation, as well as relative resource requirements that show whether anticipated time involvement would be high, medium or low for provincial enforcement authorities.

Exhibit 4. Best management approaches in promotion and education for disposal bans

Sector	Timeline	Resource Cost	Best Practices in Promotion and Education for Disposal Bans
ICI and residential	Pre-planning	Medium	Consultation sessions. Host a series of consultation sessions in all regions of a jurisdiction to explain the instrument being considered and obtain feedback from the public. Consultations could include town hall meetings or specific focus groups. The focus of the sessions should be on education about the disposal ban's objective.
ICI	During planning	High	Education and technical assistance. Provide education and technical assistance to ICI generators to assist them to understand new program requirements and their obligations to properly separate materials. This could include developing educational materials targeting different sectors (e.g., schools, retail, industry, offices, fast food, restaurants, hospitality, etc.). In Nova Scotia, education outreach officers are funded through a third party, Divert NS. This is considered to be an efficient way to resource promotion and education activity for the province's disposal bans.
ICI	Implementation and ongoing	High	Education and technical assistance. Provide education and assistance to ICI generators. Materials generators are more likely to act in accordance with the requirements of a materials disposal ban if they understand that they will be held accountable for the management of their materials. In Nova Scotia, education outreach officers are funded through a third party, Divert NS.
ICI	Implementation and ongoing	Low	Business license applicants. Require that applicants for a new or renewed business license must provide information on whether a plan for materials separation has been developed. If businesses have not developed a plan, follow up with educational guidance on the ban. In Nova Scotia, some education outreach officers are funded through a third party, Divert NS.
ICI	Implementation and ongoing	Medium	Outreach spot check visits. Special waste outreach education officers assigned to each of the materials management regions visit businesses to check materials separation practices with the message of providing guidance and education (not enforcement). Materials

Sector	Timeline	Resource Cost	Best Practices in Promotion and Education for Disposal Bans
			generators are more likely to act in accordance with the requirements of a materials disposal ban if they understand that they will be held accountable for the management of their materials.
Residential	Implementation and ongoing	High	Outreach spot check visits. Special waste outreach education officers assigned to each of the materials management regions visit noncompliant households to explain the materials ban program and materials separation requirements. The message is to provide guidance and education (not enforcement). Materials generators are more likely to act in accordance with the requirements of a materials disposal ban if they understand that they will be held accountable for the management of their materials.

2.5 Complementary Policies or Programs or Alternatives to Disposal Bans

Disposal bans are often implemented in conjunction with other complementary programs that enhance the success of the disposal ban implementation. Complementary or alternative programs identified include EPR, distribution bans, standardization of materials and procurement policies.

2.5.1 Extended Producer Responsibility

EPR programs are recognized as one of the most effective mechanisms to support the creation of a circular economy. They improve recycling rates, reduce litter, and create the conditions to incent efficiency and reduce costs for end-of-life management. Under an EPR program, companies making products are responsible for end-of-life management of their products and/or packaging. The EPR program establishes targets for collection and recycling performance for companies or organizations implementing the program. Collection and composting targets can also be included e.g., boxboard placed in the composting system.

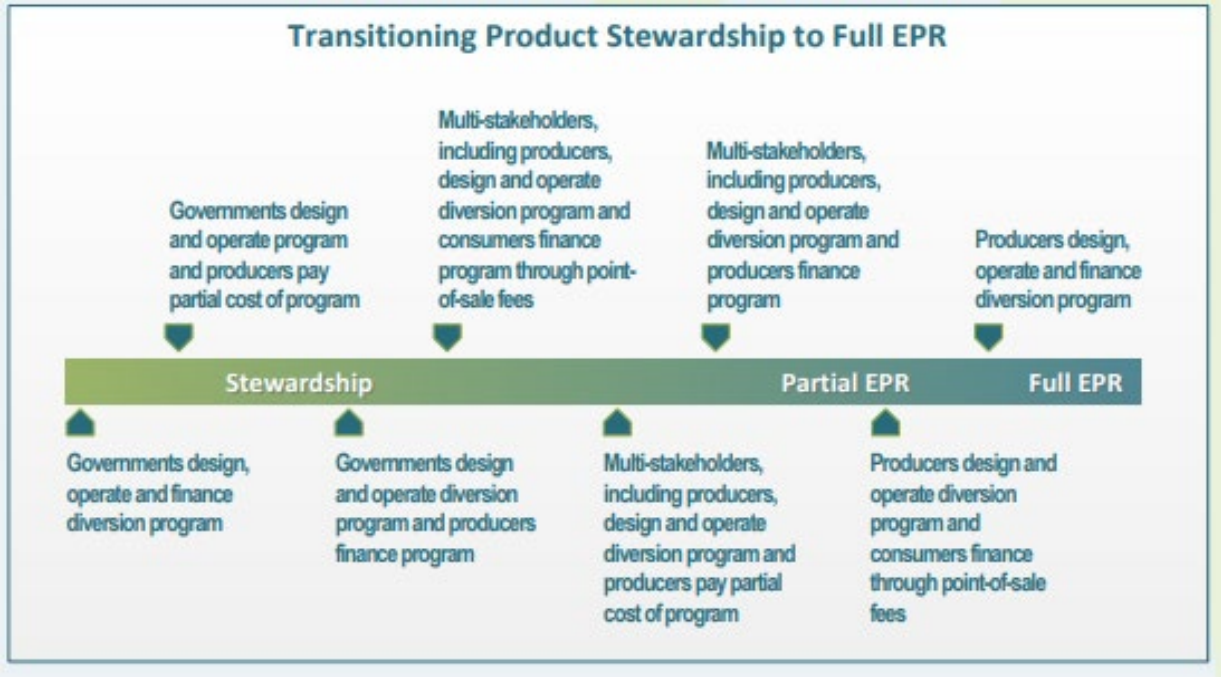
As a competitive, market-based approach to manage the reuse, recycling and safe disposal of waste products and packaging, EPR is recognized as a leading approach for reducing plastic waste in a cost-efficient and responsible manner.

Programs in which producers are fully responsible for both the physical operation and financing of recycling and potentially composting programs are considered full EPR. Programs that have some of these elements are referred to as partial EPR. Recycling and composting programs that are funded and operated by governments (municipalities or provinces) or quasi-governmental organizations are considered examples of product stewardship, not EPR. Exhibit 5 presents a scale outlining the differences between management models for EPR and product stewardship.

In 2021 EPR is in place in numerous provinces, where each program includes a wide range of plastic products or packages: various forms of plastic packaging (e.g., polyethylene terephthalate

[PET], high-density polyethylene [HDPE] and polypropylene [PP] for beverage containers; used oil, glycol and diesel exhaust fluid containers; and plastic paint containers), as well as plastics found in electronics and electrical equipment, and some agricultural plastics. Many provinces run shared EPR programs, in which governments fund some of the costs. In Québec, the EPR system for packaging is unique: producers fund 100% of the costs but municipalities are responsible for physical collection and processing operations. BC is the only province that has full EPR (100% physical and financial responsibility) for a comprehensive list of designated plastic materials across the province. Many regional governments in BC have also implemented disposal bans for designated plastics that are collected in provincial EPR programs, demonstrating how the two instruments work well together. There are currently no comprehensive EPR programs in Canada for automotive plastics, construction plastics or textiles with plastics.

Exhibit 5. Management model: product stewardship and EPR.



Source: EPR Canada 2017, reproduced with permission.

To fully support the implementation of disposal bans for more plastics, many experts recommend a shift to full EPR at the provincial and territorial level for a wider range of plastics (products and packaging). EPR shifts the financial burden of recycling from municipal governments to producers and encourages design changes for consistent plastic content and enhanced recyclability, while ultimately facilitating secondary markets for end-of-life plastics, since producers are legally responsible for collection and reprocessing.

Example of 100% Producer-Funded and -Operated Regulatory EPR

In BC, producers of packaging pay through a producer organization to cover 100% of the costs of collecting and recycling their packaging province-wide. In addition to packaging, BC's mandatory program also includes other durable plastics such as power tools, electronic toys, plastic gardening pots, plastic sports equipment, and plastic gaming devices. New products or materials can be added at the discretion of the Environment Minister.

Note that in some sectors without mandatory EPR programs, voluntary EPR programs for some plastics have been developed. One example that exists in most provinces is agricultural plastic waste recycling operated by CleanFarms. A second example is the grocery retailer plastic film/bag return programs run by the Flexible Film Recycling Group. Additional plastics that could be managed through EPR with supporting disposal bans include materials that are currently not designated in EPR programs (e.g., single-use plastics), as well as semi-durable and durable plastics such as those used in transportation vehicles and construction.

EPR:

- A key complementary program for landfill bans that shifts costs for end-of-life management of a product or package from municipalities to producers.
- Province-wide EPR provides a regulatory backdrop that local governments can support through local disposal bans that are consistent across the province.

2.5.2 Distribution Bans

A distribution ban is a prohibition on distributing a designated product or packaging within a specified jurisdiction (e.g., a municipality, province, territory or country). A complementary distribution ban makes it easier to enforce a disposal ban, since the item would not be placed on the market, and results in a substantial reduction in the amount of material requiring end-of-life management. Some jurisdictions have implemented or are considering distribution bans. Distribution bans can have consequences since they remove products from the marketplace. Analysis should weigh the impact of the removal of the product from the market, other waste management options and costs, and benefits of a distribution ban. Monitoring and enforcement of a distribution ban take place at the point of sale, rather than post-consumer. The most common

item for which a distribution ban has been implemented is the single-use plastic bag, which is typically prohibited from distribution at retail locations (see Retail Council of Canada [n.d.] for examples).

Prince Edward Island banned single-use plastic bags from distribution at retail locations on July 1, 2019, with the *Plastic Bag Reduction Act*. Best practices by the government included investing heavily in promotion and educational activities prior to implementing the ban, spending approximately 12 months informing consumers and businesses of the change through media and advertising. After the regulation came into force, there was a six-month grace period to allow the retail sector to transition from plastic to alternatives, during which penalties for infractions were not applied. The *Plastic Bag Reduction Act* was the first regulatory instrument in the province to focus on reduction instead of recycling. This initiative's primary resource requirement was the outreach and education time involvement.

Distribution Ban:

- A complementary program for disposal bans that targets waste reduction upstream (i.e., before the plastic enters the marketplace) by restricting distribution by the retail sector.

2.5.3 Performance Targets

Performance targets could be broad or specific. They could address overall waste policy or material-specific diversion targets, with supporting waste policies for reuse or diversion. Performance targets could include a minimum recycling or diversion (for some packaging that is also compostable) rate to be achieved based on the percentage of product or packaging placed on the market (i.e., targets by material type), or they could include a diversion rate (e.g., the amount diverted to reuse, refill, repair, or repurpose).

The European Union (EU) Strategy for Plastics in a Circular Economy identifies a collection target for plastic bottles placed on the market and a recycling target for specific plastic packaging. Mandatory targets are only achievable when industry is involved in program delivery alongside the government. EPR is considered essential for the success of performance-based targets. Performance targets could be mandatory in EPR programs (i.e., sector- or product-specific targets) to increase the supply of collected materials and reduce the amount of plastic being discarded. The challenges of performance targets relate to inconsistent formulas used to track the sales and volume of materials on the market. Standardization in the formulas used and variables to be tracked could mitigate this challenge (European Commission 2019).

Performance Targets:

- Create an opportunity to drive design changes and promote consistency in materials placed on the market.
- This policy approach is well suited for materials that are already in demand and with recycling infrastructure.

2.5.4 Procurement Policies and Mandatory Recycled Content

Government procurement policies that require a minimum recycled content in the goods and packaging they purchase can be key complements to disposal bans. As large purchasers, governments have sufficient influence in the marketplace to set expectations and define new specifications for materials they purchase. Where the production of plastic items or packaging is geared to meet a designated recycled content standard, the supply chains will be built to meet demand for those types of resins collected post-consumer. The demand for post-consumer content will ensure that materials processed for recycling are highly valuable and therefore not discarded.

One way to use procurement policy or standards to influence the market is to require secondary material quotas in the manufacturing of designated products for which there are currently no recycled content standards and no recycling options. For example, a government could designate a minimum required recycled content in the plastic films used to manufacture garbage bags, products that would otherwise never be destined for recycling but could incorporate recycled content without violating food and safety regulations. In 2019, California passed legislation that requires a minimum of 25% reprocessed post-consumer plastic content in a specific class of plastic containers and garbage bags sold within the state. Manufacturers and wholesalers that are noncompliant with this law are ineligible to be awarded any state government contract or subcontract for goods or services. Oregon has implemented a Rigid Plastic Container Rule that requires containers sold in the state to be manufactured with 25% post-consumer or recycled plastic content, or to be reused or refilled at least five times. The European Commission is working on public procurement criteria to support the integration of recycled plastics in domestic markets and to drive the circular economy for plastics (European Commission 2019).

Procurement Policies and Mandatory Recycled Content:

- Create a market for recycled plastics by generating a specific demand for these materials.
- Leverage the market-buying potential of governments to incorporate plastic reduction into procurement practices and to establish recycled content requirements.

2.6 Key Elements of the Best Management Approaches for Disposal Bans

Based on the best practices identified above, some key success factors have been identified for the successful implementation of disposal bans:

- **Consistency**: Ensuring the ban is applied on a senior-jurisdictional basis (e.g., region-wide, province-wide, territory-wide, or country-wide) and ensuring that recycling or composting program alternatives are consistent will contribute to the successful implementation of the ban, as well as improve the harmonization of recycling and composting programs.
- **Regionalization in remote areas or areas with smaller, spread-out communities**: Effectiveness and efficiency are optimized when a single operating authority serving a geographic area has decision-making power over the entire materials-management system.
- **Application to all sectors**: Ensuring the same requirements are outlined for the ICI sector and the residential sector is key to success. These requirements should apply equally to residences, schools, hospitals, commercial buildings, restaurants and hospitals.
- **Source-separation requirements for all generators:** Outlining these requirements in the regulation can minimize enforcement costs at the disposal facility. In the residential sector, generators are households and multi-unit building owners, as well as landlords. In the ICI sector, they are building managers, office managers and all staff.
- **Use of standard inspection protocols at disposal facilities:** Disposal facilities and transfer stations must apply a consistent inspection protocol to ensure banned materials are not entering their facilities. This protocol should include a standard checklist and a process to identify noncompliant loads and options for courses of action that are clearly communicated to haulers (see examples in Exhibit 3, including notifications of noncompliant loads, surcharges where the transfer facility will conduct source separation on the haulers' behalf, load refusals, etc.).
- **Convenience**: Alternatives in place for banned materials must be convenient for all sectors, including residential and ICI, to ensure high participation rates and minimize illegal dumping or waste exporting.
- **Secure markets**: Having markets to recycle banned plastics is an important factor. This factor is less of an issue for municipalities in jurisdictions with EPR programs for plastics, where it is the producer's responsibility to create or identify secondary markets.
- **Complementary programs**: Establishing other programming or policies that contribute to the objective of diverting waste from disposal is key to ensuring success with disposal bans. EPR, distribution bans, performance targets and procurement policies have been identified as complementary programs for disposal bans.
- **Promotion, education and outreach:** These activities are key during planning, implementation and ongoing operations to ensure program expectations are understood.

3.0 ECONOMIC INSTRUMENTS

3.1 Levies and Deposits: Overview

Levies refer to economic instruments, such as fees, that are a "disincentive" for creating waste. Deposits are incentives to return a product or package for reuse, refill or recycling at end-of-life. The focus of this section is on how these two economic instruments can be applied to specific plastics. These definitions were developed for this document.

A point-of-sale levy is applied to a product or package when it is purchased by a consumer, who may be an individual or an organization. The levy is a disincentive when applied to a non-returnable product or package, since it is not recoverable by the consumer, and often the product or package is not recyclable. The intent is to set the fee high enough to discourage the use of the product or packaging. Levies have been used for plastic bags and, to a lesser extent, foamed plastic products. They can be applied through a regulation or a bylaw, or voluntarily by retailers. A point-of-sale levy can be applied to specific plastic products or packages.

A DRS is an instrument that imposes an appropriate deposit to incentivize a consumer to return the empty container to a collection point for a full or partial refund. DRS programs are used in many parts of the world to prevent waste and increase recycling, often focusing on beverage containers. A DRS can be applied to specific plastic products or packages.

A disposal levy charged at collection is also called a "pay-as-you-throw" (PAYT) program, which applies a cost to waste disposal based on the volume of waste. This instrument primarily targets the residential sector and is administered at the municipal level. These programs include a wide variety of options, which may be based on waste volume, weight or number of bags. A disposal levy charged at collection is not easily applied to specific plastics.

A disposal levy charged at a waste disposal facility is the price for disposing of a quantity of waste in addition to the regular tipping fee. This levy is applied regardless of the sector from which the waste is derived. It can also include differential tipping fees, where higher prices are charged for loads with waste mixed with recyclables and organics compared to a load of designated recyclables or organics. No examples were identified of a disposal levy charged at a waste disposal facility that targets only plastics. A disposal levy charged at a waste disposal facility is not easily applied to specific plastics.

Levies and deposit instruments that can be specifically applied to plastics are the focus of this section. The other levy instruments are noted in the complementary policies sub-section (see Section 3.5).

3.1.1 Point-of-Sale Levies That Can Be Applied to Specific Plastics

Many national governments have implemented levies on plastic bags to discourage their use and reduce waste and litter. The United Nations Environmental Programme (UNEP) conducted a detailed study (UNEP 2018) on the global use of regulatory and economic instruments to reduce waste from single-use plastics. In this report, UNEP identified 34 countries with implemented levies on single-use plastics and five other countries where levies have been announced and are being planned. Countries that have implemented national levies on plastic bags include Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Greece, Hungary, Ireland, Scotland, England, Italy, Latvia, Lithuania, Malta, Netherlands, Portugal, Romania, Slovakia, Spain, Israel, China, Hong Kong, Indonesia and Malaysia. In each country, the government-sanctioned levy is a source of revenue for the government and is often used to fund specific recycling, composting or waste-reduction initiatives. This government-sanctioned levy system is in contrast to the retailer-imposed levies we see at most major retailers across North America, in which a "plastic bag fee" is charged to cover the cost of the plastic bag. However, in most cases, this fee is not formally dedicated to funding any waste-reduction initiatives, nor does the government receive any revenue from retailer bag fees.

The impacts of levies applied to plastic bags have been documented by UNEP (2018) and include:

- Ireland: consumption of plastic bags decreased by 90% within one year.
- Belgium: consumption of plastic bags decreased by 80% over 10 years.
- Hong Kong: consumption of plastic bags decreased by 25% within one year.
- Indonesia: consumption of plastic bags decreased by 40% within one year.

One of the key success measures implemented by the Irish government before it imposed a plastic bag tax was to commission a public opinion survey to estimate the amount that citizens were willing to pay for a plastic bag. It then set the levy at a value more than six times higher than what citizens said they were willing to pay in order to have a strong influence on consumers' behaviour.

In a Canadian example, the Government of the Northwest Territories introduced a mandatory fee of $0.25 on plastic and paper bags at the point of sale through its Single-use Retail Bag Program in 2010. Since the start of this program, more than 69 million bags have been kept out of landfills. This measure is significant for northern communities because most of them have above-ground disposal sites where bags tend to produce litter.

Some countries have used a combination of a disposal ban and a levy for plastic bags. For example, in 2008 the Government of China introduced a ban on plastic bags thinner than 25 microns and a levy on thicker plastic bags, promoting the use of durable cloth bags and shopping baskets. Exemptions for hygiene reasons were allowed for bags used in the handling of fresh food, such as raw meat and noodles. One year after the introduction of the legislation, the distribution of plastic bags in supermarkets fell by 70% on average, avoiding the use of 40 billion bags. Within seven years, the number of plastic bags used by supermarkets and shopping malls shrank by two-thirds, with 1.4 million tons of bags avoided, as reported by UNEP (2018).

Levies on single-use plastics bags have had comparable effects to disposal bans in terms of waste reduced in England, Ireland, Portugal and Denmark, according to Smart Prosperity Institute (2019). Levies are also considered to be a more economically efficient approach than disposal bans. Some countries are considering levies on single-use cutlery, drinking straws, takeaway packaging, fruit netting, cling film, chip packets and plastic wrap.

The following elements are key to successful implementation of point-of-sale levies for plastics:

- establishing the need for continuous improvement so the levy remains a disincentive by putting in place mechanisms to adjust the levy if the public seems willing to pay it
- establishing the responsibilities of government to include auditing and oversight of the transparency of the levy and the waste reduction activities it is being used for
- conducting baseline studies and impact studies with retailers to enable tracking of the success of the levy in reducing the use of plastic bags.

Some countries have applied the levy to suppliers of plastic bags, some have applied the levy to retailers, and most have applied the levy to consumers. Levies are a complementary tool for disposal bans and can be used in conjunction with them. However, experience has shown that on their own, levies are a more efficient approach compared to disposal bans, as they do not require dedicating as many resources to compliance monitoring and enforcement.

3.1.2 DRS Programs That Can Be Applied to Specific Plastics

A DRS is an economic incentive program that imposes a small deposit on containers when they are sold and refunds it to the consumer (partially or fully) when the empty container is returned to a collection point for recycling. This deposit does not cover the cost of recycling; rather, the cost of recycling is embedded in the price of the product, most often as an environmental handling fee or a container recycling fee (terminology varies by jurisdiction; CM Consulting 2018). These fees cover the cost of recycling in a product stewardship program. The deposit, paid by the consumer, is the incentive component in this program.

DRS programs are used in many parts of the world to prevent litter and increase recycling. Over 130 million people in the EU live in countries that have implemented DRSs. DRSs have been implemented in most Canadian provinces for designated ready-to-serve beverage containers, excluding milk (BC, YT, AB, SK, NT, ON [alcohol only], QC, NB, NS, PEI and NL), as well as 10 states in the United States, and Australia. Although typically a DRS is a partnership between a retailer and a beverage producer, programs are most often implemented by a jurisdiction-wide regulation, such as one that covers an entire province (Envirings, Inc. and Giroux Environmental Consulting 2019).

One of most important benefits of a DRS is that the economic incentive results in very high return rates, which reduces litter as people collect the containers from public spaces to return them in exchange for the refund. In Canada, for instance, provinces with DRSs for single-use beverage

containers achieve average return rates of 80%, compared to an average of just 50% in provinces that recover beverage containers through municipal curbside programs funded by producers, because the curbside program does not have an economic incentive for the consumer to recycle e. Return rates are even higher in Europe, where nearly every country with a DRS for single-use beverage containers achieves recycling rates of over 85%. Norway and Lithuania reported return rates of over 90% in 2016. Also importantly, jurisdictions that have well-established DRS programs report that materials coming from this program are higher quality, cleaner, better sorted and garner a higher market value than those collected in mixed recycling or curbside systems (Envirings, Inc. and Giroux Environmental Consulting 2019).

One approach to a DRS is the "return to retail model," in which retailers that sell beverages are responsible for accepting empty containers from consumers for recycling. This approach is considered the best practice as it is the most convenient for consumers and results in the highest return rates. A trend among retailers of DRS programs is to opt for automated collection using reverse vending machines. These machines make the return process fast and convenient, and containers are automatically sorted by brand, material type and colour. In addition to high material recovery rates, a DRS also generates significant cost savings for municipalities. A 2019 feasibility study concluded that a DRS for non-alcoholic beverage containers, alongside improvements in the Ontario Blue Box program, would recycle an additional 118,000 tonnes of materials every year while saving $12 million (Eunomia 2019).

The key success factor of a DRS has been identified as setting the refundable deposit high enough to provide an incentive for the consumer to return the bottle rather than discard it. Even in BC, where DRSs have been used successfully for years, continuous improvement changes are being considered. For example, program expansion options are being considered to include deposits on more containers, as well as to increase the refundable deposit to $0.10 rather than $0.05 per container (Clean BC 2019). One example of the impact of an increased refundable deposit is when the state of Oregon doubled the deposit-refund amount from US$0.05 to US$0.10 (for all beverage containers) and added new return options. These improvements increased the return rate from 65% to 90% in 2018 (Clean BC 2019). Alberta also increased its deposit-return incentive to $0.10 in 2008 and expanded the program to include milk and related containers, and total recovery rates increased from 75% to 85% (CM Consulting 2018; Reloop 2018; Reloop and CM Consulting 2017).

The following specific elements are key to the successful implementation of a DRS:

- focusing on outcomes, such as setting a recycling target, and avoiding overly prescriptive legislation
- establishing the need for continuous improvement by putting in place mechanisms to adjust the deposit amount if recycling targets are not being achieved
- ensuring that consumers can conveniently redeem containers and that the program includes all beverage types (with no exceptions)
- establishing the responsibilities of the government to include auditing, oversight and enforcement, especially if a nonprofit management board is used.

3.2 Benefits of Levies and Deposits

The key benefits of levies and deposits as identified in the literature reviewed include the following:

- Levies send the correct price signal to reduce waste when set at an appropriate level.
- Deposits send the correct price signal to return containers for recycling.
- DRSs not only keep valuable materials out of landfills, they also reduce greenhouse gas emissions and the energy required to produce new containers from raw materials.
- Both instruments help reduce the amount of waste produced and the amount of litter. Both instruments have very high success rates, with lower enforcement struggles compared to the implementation of disposal bans.
- Both instruments provide flexibility that a regulatory ban cannot easily provide in case of emergency (e.g., needing to use plastic bags, bottles or single-use food packaging during local emergencies).
- Parties responsible for the supply and, in some cases, sale of beverages (producers, distributors and retailers) share the responsibility to meet the requirements of the legislation through a collaborative administrative approach and free market–driven operational delivery, ensuring cost efficiency and compliance.
- DRSs for beverage containers create jobs and result in significant cost savings for municipalities due to the significant volumes of containers that do not require curbside collection and processing. Consumers return the containers to depots or retail locations themselves, and transporting the containers from these locations to dedicated processers in the beverage industry can result in significant cost savings for municipalities.

3.3 Challenges with Levies and Deposits, and Best Management Approaches

Jurisdictions with experience using levies and DRSs indicate that these instruments present some challenges. Exhibit 6 shows an overview of the identified best practices that address challenges with levies and/or deposits.

Exhibit 6. Best practices to mitigate the challenges of levies and/or DRS

Challenge	Best Practices to Mitigate Challenges
Point-of-sale levy: Limited application to single items, and if administered by retailers without government involvement, the levy does not fund any public goods or services.	The levy should be administered by a government. The most common example of this challenge is that most large grocery chains in Canada have already implemented a $0.05 fee on plastic bags. Governments will need to develop a new program, consult with national retail chains, and develop program accountability mechanisms for point-of-sale levies, where the dedicated fund is directed toward recycling infrastructure. This would require some administrative programming with retailers. In addition, a point-of-sale levy could be applied to other plastics, such as straws, single-use cutlery, cold takeaway cups, etc., to disincentivize their use. Clear communication and accountability. A levy applied at the point of sale must be clearly communicated to consumers and retailers, and the dedicated funds should be used for recycling or waste reduction by the government. There must be traceability of the finances and accountability for the funds. Also, the levy should be set at a level that

Challenge	Best Practices to Mitigate Challenges
	significantly discourages the use of the product or package. For example, most major grocery store chains across the country currently charge $0.05 per plastic bag, which is explained as the cost of the bag. If a government were to add a disposal fee to this bag, the fee and the resulting funds should be clearly marked for waste diversion programming.
Point-of-sale levy**:** Not set high enough to be a deterrent.	The levy should be set at a level that significantly discourages use. One of the key success measures implemented by the Irish government before it imposed a plastic bag tax was to commission a public opinion survey to estimate the amount that citizens were willing to pay for a plastic bag. The government then set the levy at a value more than six times higher than what citizens said they would pay, in order to have a strong influence on consumers' behaviour. In a Canadian example, the Government of Northwest Territories introduced a mandatory fee of $0.25 on plastic and paper bags at the point of sale through its Single-use Retail Bag Program in 2010.
Levies: Not enough engagement by producers.	Add a levy to producers in an EPR program if they do not meet performance targets to collect containers above a designated threshold. In Norway, beverage producers are subject to an environmental tax on plastic bottles, which is suspended once producers collectively exceed a 95% recycling target. In response to the imposition of the tax, producers introduced a DRS that resulted in the recycling of 97% of containers sold. In other words, the levy provided an incentive for producers to take action and triggered the development of an effective DRS where consumers had an incentive to return the containers.
Levies: Reduced impact over time.	Monitoring and flexibility to change levies over time is important for continual improvement. As conditions change over time, it is important to monitor the progress and effectiveness of the policy and adjust it accordingly. Governments must keep the public updated on the progress and benefits achieved to continue building consensus and demonstrating accountability. Progress could be monitored in several ways, including through audits, surveys and interviews. It would be advisable to review the policy instruments on a regular basis (for instance, with every year for the first three to five years, and then every five years). In Ireland, thanks to a regulatory impact assessment, the government learned that the consumption of plastic bags increased a few years after the levy was introduced as people became used to it. As a result, the levy amount was increased.
DRS: Impact on retailers of storage requirements.	The impact on small retailers and corner stores that would be required to store returned containers is significant. When small corner stores and smaller retailers are required to store returned containers in a DRS, their lack of space severely impacts their ability to comply with a new program. Governments must adequately consult with all small business associations, retailers and retailer associations to understand their concerns and discuss options. In addition, governments must conduct a thorough cost-benefit assessment of establishing a new DRS program compared to another program (e.g., EPR) and decide which makes the best sense for their jurisdictions given existing store sizes, local infrastructure, etc., and consider alternatives within a DRS (e.g., return to depot) or alternative programs based on the cost-benefit assessment. Retailers have two options for return-to-retail DRSs: 1) invest in return vending machines or 2) keep returned containers in storage. Both options require space and financial investment.
DRS: Do consumers prefer DRS or the convenience of curbside?	In long-standing curbside pickup programs, it may be difficult to get consumers used to the idea of bringing some containers to a retail or depot location for recycling, when they are used to the convenience of putting everything curbside for pickup. There are no best management practices identified to address this challenge, other than ensuring the deposit provides sufficient incentive for consumers to bother collecting it.

3.4 Promotion and Education Activities for Levies and DRSs: What Works Best?

Exhibit 7 presents a summary of promotion and education messages identified for levies and DRSs. Note that a DRS is incentive-based, so participation rates are often tied to the amount of refund as a direct incentive. In contrast, a point-of-sale levy is a direct disincentive to buy a single-use or disposable item. These instruments share an objective (waste avoidance) and use different strategies to achieve participation.

Exhibit 7. Promotion and education activities for economic instruments

Deposit Return Systems (DRSs)

- Objective: provide an incentive to return recyclable containers with refundable deposits
- Extensive consultation required with retailers and small business associations on new program design and impacts to their business
- Require raising a significant amount of public awareness prior to implementation to identify return locations and the infrastructure required by retailers
- Participation highly depends on the amount of refund (incentive-based)
- Significant ongoing promotion and education following implementation, including at retailers
- Monitor and report on progress: return rates, impacts, savings to municipalities.

Point-of-Sale Levies

- Objective: price penalty on a disposable item, and show how a reusable alternative saves money
- Raise awareness of litter issues prior to implementation: the public must receive a clear message
- Communicate how the levy will be used and its environmental benefits
- Monitor and report on progress: benefits, funds collected and how they are used
- Penalty must be high enough to be a disincentive. Otherwise, consumers will be willing to pay for convenience.

3.5 Complementary Policies or Programs for Levies and Deposits

Both economic and regulatory instruments are complementary to levies and DRSs. Key complementary programs include EPR (discussed earlier in Section 2.5.1), disposal bans (discussed in Section 2.1), jurisdiction-wide waste policies, and other economic instruments described below.

3.5.1 Pay-as-You-Throw (PAYT)

A residential PAYT program provides a direct incentive to reduce the amount of garbage discarded, since waste generators bear the direct cost of the waste they generate instead of a flat fee charged regardless of the amount of waste produced. Although the instrument is applied to waste as a whole and is not focused on plastic waste, it is complementary to plastics management instruments described in this document. Many options exist for PAYT programs. The City of Beaconsfield, Québec, implemented a program using new radio-frequency technology that charges PAYT fees based on the frequency of bin collection (EcoFiscal Commission 2018).

Example of Waste Diversion Results from a PAYT Program in a Small Municipality:

The City of Beaconsfield, QC, implemented a PAYT program that uses radio-frequency transponder technology with an annual fixed fee based on the bin size selected by the resident and a variable fee each time bins are collected. Results have shown a decrease in waste discarded by 50% per capita in the first year of the program.

(*EcoFiscal Commission, 2018).*

The City of Toronto uses a program in which residents pay fees for waste collection based on the size of their automated curbside garbage bin or multi-residential bulk bins. In this volume-based rate structure, residents with the largest garbage bins pay the most and those with the smallest bins pay the least for waste pickup (City of Toronto n.d.).

One benefit of a PAYT program is that it can reduce a municipality's operational costs for solid waste management. For example, Beaconsfield's PAYT program has resulted in a 40% decrease in the cost of garbage collection and transport for the municipality. Similar statistics have been observed in Massachusetts, United States, and in Flanders, Belgium, for PAYT programs. PAYT programs in Massachusetts have reduced residual materials by an average of 37% in the communities where it has been introduced (Regions for Recycling 2014; Massachusetts Department of Environmental Protection 2015).

3.5.2 Levy at a Disposal Facility

A levy charged at a disposal facility is applied to a load of waste, not specifically to plastics. The goal of a levy charged at a disposal facility is that it will lead to waste diversion by increasing the cost of landfilling. However, a disposal levy is less effective at directly altering consumer behaviour to reduce plastic purchases, and it is ineffective at changing manufacturer activities toward taking responsibility for waste. Rather, disposal levies charged at a facility are geared toward haulers, incentivizing them to convince their customers to source separate materials. The disposal facility can implement a system of differential fees where waste mixed with recyclable or organic materials is subject to a much higher tip fee compared to sorted waste. Differential fees provide a more direct pricing signal in the City of Nanaimo, BC, where tipping fees are between

100% and 190% higher for waste loads that contain recyclable materials (EcoFiscal Commission 2018).

A levy at the waste disposal facility can generate a revenue stream for a government (either provincial, regional or municipal) as a dedicated fund for waste-diversion infrastructure or programming. Surcharge tipping fees such as levies are common in Europe and several states in the US. In Canada, Québec and Manitoba are the only two provinces that apply levies at the waste disposal facility for dedicated diversion programming or diversion infrastructure funding (OWMA 2014). Experiences from jurisdictions that have implemented disposal facility levies illustrate a strong link between higher disposal prices and reductions in landfill waste. A note of caution with using a disposal levy to generate a dedicated revenue stream is that the advantage might be offset by the ineffectiveness of the instrument to alter market behaviour more broadly. For this reason, levies should be used with complementary programs that also influence consumer and producer behaviour.

3.6 Key Elements of Best Management Approaches for Point-of-Sale Levies and DRSs

Exhibit 8 presents the key considerations for point-of-sale levies and DRSs. Information is organized based on the objective of the instrument (what it aims to do), and which type of levy or incentive instrument reviewed would be best suited for the objective. The right-most column notes the order of government to which the instrument is best suited to be applied.

Exhibit 8. Considerations for decision-making regarding levies

Objective	Levy to Consider	Jurisdiction Best Suited for Implementation
Reduce use of single-use plastics. Applied to a single plastic item as a disincentive to its use. Typically applied to materials for which recycling programs are not available or widespread (e.g., plastic bags and potentially single-use cutlery, straws, polystyrene or plastic takeout cups).	Point-of-sale levy. Note: point-of-sale levies could serve a dual purpose of establishing a fund for diversion programming or infrastructure.	Province or territory
Improve waste diversion and material recovery in ICI sector. To increase ICI recycling rates in jurisdictions with high residential recycling rates but low ICI recycling rates.	Disposal levy applied at a disposal facility as a surcharge in addition to a tip fee for waste. Differential rates for levy could be set much higher if the waste contains recyclables.	Municipality, province or territory
Improve residential waste diversion and materials recovery while setting the pricing for waste to be much higher than recycling. To increase residential recycling rates and reduce overall waste generated.	PAYT programs for the residential sector.	Municipality
Dedicated funding. To find a way to establish a dedicated fund for much-needed waste diversion, recycling, or primary or secondary processing infrastructure across an entire jurisdiction.	Disposal levy applied at a disposal facility. Note that disposal levies are not considered to be significantly effective toward prevention, but rather help incentivize and increase recovery.	Province or territory
Dedicated funding. The municipality wishes for waste management to operate as a self-sustaining separate utility based entirely on the volume of waste generated (e.g., similar to water and sewer utilities), targeting both residential and ICI sectors.	PAYT programs for all sectors.	Municipality
Increase recovery of and reduce litter of specific plastics such as beverage containers.	DRS programs for beverage containers.	Province or territory

Based on the best practices explored in this document, some key success factors have been identified for the successful implementation of point-of-sale levies and DRSs:

- **Convenience**: Recycling must be convenient for all sectors (residential and ICI) to ensure high participation rates and minimize illegal dumping or waste exporting.
- **Complementary programs**: Other programming or policies that contribute to the objective of diverting waste from disposal must be in place. Levies and deposits are best when not applied in isolation.
- **Application to all sectors**: Specific requirements should be outlined for the ICI sector as well as the residential sector.
- **Promotion, education and outreach:** These activities are necessary during planning, implementation and ongoing operation to ensure understanding about program expectations, rules and the destination of funds. Clear communication that recycling is less

expensive than disposal is key. Stakeholder buy-in is essential to avoid illegal dumping or contamination of bins.

- **Ensure the price signal is correct and monitor progress:** Adopting a sufficiently high levy can influence consumer behavior, and monitoring progress allows governments to change the price over time to maintain its impact.
- **Governments can implement levies at the point of sale instead of retailers, but transparency and accountability are key.** If applying levies at the point of sale, it's important to establish and maintain transparency and accountability in how fund resources are used to support waste diversion; this helps maintain public support for and trust in the levy system. In some jurisdictions, only retailers have established point-of-sale levies, not governments.
- **Keep legislation focused on outcomes**: Regulations should not be overly prescriptive on process. The financial signals for both levies and deposits should provide sufficient incentive to reach the objectives.

4.0 OTHER INCENTIVES AND VOLUNTARY INSTRUMENTS

4.1 Other Incentives Targeting End-of-Life Plastics

This section presents a short summary of a few different types of voluntary initiatives that support the implementation of regulatory instruments. This category includes initiatives that facilitate change by consumers, retailers, food establishments, commercial sectors and institutional settings. It is not meant to be a comprehensive overview of all types of incentives that target plastics; rather, it is a brief snapshot of the range of initiatives underway that also support the implementation of disposal bans.

4.1.1 Voluntary Initiatives Led by Brand Owners/Grocery/Retail Sector

Sector: Large brand owners and manufacturers Incentive: New application for DRS

An innovative application of DRS through food and consumer product e-commerce is being tested in Toronto. This new program will allow consumers within a 200-km radius of the city to access a service where they can buy products with reusable packaging. Offered by Loop, this global circular shopping platform is designed to eliminate waste by transforming the packaging of everyday items. A deposit will be charged for the container, and it will be refunded when the stainless-steel vessel is returned during the next delivery. The service is not based on a subscription; instead, it is based on deposits paid for each package, which are refundable when packages are returned. Returnable packages do not need to be cleaned; they can simply be left in the tote bag on the doorstep for pickup. All packages are commercially washed and refilled. Products come in a designated returnable tote and do not include cardboard or bubble wrap. In

partnership with major brands, Loop is launching in the United States, Paris, the United Kingdom, Canada, Germany and Japan (Loop n.d.; Solid Waste Magazine 2019).

Sector: National governments, as well as large brand owners and manufacturers
Incentive: Driving Circular Economy

Circular Economy (CE) is an umbrella term that is meant to inspire actions or programs that reduce wasted resources; rather than being discarded, materials are reused, repurposed, recycled or composted. There have been numerous CE initiatives around the world, with Europe leading the way. In 2015, the European Commission adopted an ambitious Circular Economy Action Plan, which included developing a regulatory framework for mandatory recycling targets of 70% of all packaging waste in the European Union (EU) by 2030, as well as material-specific recycling targets (European Commission 2019). A monitoring framework on progress toward a circular economy for each member country was developed, including a set of 10 indicators covering production, consumption, waste management, recycling, raw materials, investments and jobs, and innovation. The proposed directive calls for different measures for specific items made of single-use plastics. When alternatives are clearly available, market restrictions are proposed. This international government-led initiative at the EU level will drive change for national and regional governments within the EU as well as large brand owners (Envirings, Inc. and Giroux Environmental Consulting 2019).

As a result of the global CE movement, large international brand owners have made public pledges to reduce plastic waste from their operations and to manufacture food service items that are easily recyclable or compostable. Their pledges also include a commitment that any new technologies they develop for recyclable or compostable food service and takeout items must be non-proprietary, so that smaller companies can adopt them. This initiative has also led to investments in private funding for research into the development of innovative sustainable packaging materials, with major international industry players collaborating to develop sustainable alternatives that encourage CE (Crittenden 2019).

Sector: Local grocery stores
Incentive: Bulk food/zero-waste store

Some municipalities in Canada have seen bulk-style food stores opening as alternatives to traditional grocery stores. Most of these stores sell locally produced products in bulk, with the expectation that consumers bring their own containers. If they do not bring their own containers, consumers can buy paper bags for a fee. Local customer demand is a driver for the decision to open bulk-based local grocery stores. Store owners indicate that they engage with their suppliers to negotiate plastic-free packaging or reusable packaging with their own bulk orders of products.

Sector: Grocery store chains and small and medium-sized retailers
Incentive: Return of plastic bag films for recycling (voluntary EPR)

Thousands of grocery stores across North America participate in a voluntary program where plastic films such as bread bags can be returned to grocery stores for recycling through the Flexible Film Recycling Group, operated by the American Chemistry Council. The group is implementing a national multi-stakeholder public awareness initiative known as the Wrap Recycling Action Program, which seeks to engage more consumers and businesses in effective programs to recycle plastic film packaging. This program aims to make plastic film packaging a commonly recycled material with a growing recycling rate. The organization is working on identifying opportunities and barriers to the enhanced recovery of polyethylene (PE) film from small and medium-sized retailers, as well as developing a roadmap to help eliminate barriers (American Chemistry Council n.d.).

4.1.2 Voluntary Initiatives Led by the Food Service Sector

Sector: Industry association for quick-service food restaurants
Incentive: Best practice guidance to reduce the use of single-use

The Canadian quick-service food restaurant sector is represented by an industry association that has published best practice guidance on reducing the use of single-use plastics in restaurants. This guidance includes checklists for store owners to review waste reduction and plastic alternatives, emphasizing "how to" information, and explaining that each individual store must reach out to its local municipality and waste hauler to identify whether alternatives under consideration can be recycled or composted in local programs. Many large fast-food restaurants have already switched to compostable paper straws in their locations across Canada and are looking for alternatives to plastic cup lids and cutlery. Having the industry association lead the development and distribution of this type of guidance is a best practice for the quick-service food sector (Restaurants Canada 2019).

Sector: Quick-service food restaurant chains
Incentive: Switching to compostable cutlery in quick-service food restaurants

Many quick-service restaurants have switched to compostable alternatives to plastics, which could support a disposal ban on single-use plastics. Compostable plates, bowls and cutlery can be made from a variety of materials (e.g., wheat bran, corn, waste wood, paper fibres, etc.). However, there are significant challenges with compostables because some are made to look like plastic, which makes it difficult for consumers to know whether they are compostable or not (da Silva 2018). In addition, many compostable products are designed to break down over a longer processing time than is used by most composting facilities, making the materials difficult for some facilities to manage. To truly support disposal bans, compostable cutlery and quick-serve containers must be

accepted in local composting programs, clearly identified as compostable and not manufactured to look and feel like plastic.

Sector: Food service/commercial buildings/airport authorities
Incentive: Reusable cutlery policies

This type of initiative could be driven by a government policy, but even a building owner or manager policy could require reusable cutlery for all food-service locations within a building, mall, hospital or airport. This change is more easily accomplished where all food outlets use a central steel cutlery service that collects all cutlery for washing by communal commercial dishwashers. Many European airports operate this way, and airport authorities in the United Kingdom, the EU and India have policies banning single-use disposable plastics. Zero Waste Europe also recommends policy solutions to plastic waste that involve requirements for reusable tableware and service-ware for in-store consumption in all food and beverage outlets (Miller *et al.* 2019).

Sector: Coffee shops
Incentive: Levy on disposable cups (polystyrene)

Results from a new study by Zero Waste Scotland released in October 2019 suggest that people are more likely to carry reusable cups with them to purchase coffee while away from home if coffee shops and cafes charge for disposable cups rather than offering discounts for reusable ones. Zero Waste Scotland ran a trial in four cafes that used polystyrene coffee cups. During each trial, the shops stopped offering a discount if a customer brought their own reusable cup or mug, and instead reduced the total price of each drink by the equivalent amount. Then, each cafe charged customers who did not bring a reusable cup that same amount as a levy on each single-use cup. The trials revealed that cafes that made the cost of using a disposable cup obvious, rather than concealing it in the price of the drink, increased the proportion of customers who switched to reusable cups for on-the-go hot drinks by 150%. This study demonstrates that people are more sensitive to perceived losses than perceived gains when making decisions (Lenaghan *et al.* 2019).

4.2 How Can Governments Support Similar Initiatives?

Governments can encourage voluntary initiatives to continue in various ways. These are presented in Exhibit 9, organized by category: regulatory and policy initiatives, standards, and stakeholder engagement.

Exhibit 9. How governments can encourage or support other initiatives

Type of Support	Description
Regulatory and Policy	
Mandatory EPR to drive upstream changes in waste reduction	Continue efforts to work toward consistent and harmonized EPR programs for plastics, including new and existing plastics, which drives upstream design changes over time. Waste policy that focuses on design and consumption changes, not just end-of-life instruments, is becoming more important. Waste policy that promotes a circular economy, emphasizes the use of fewer raw resources, the prevention of waste, and closing material loops through design for repair is a crucial part of EPR programs.
Government coordination	Engaging collaboratively with other orders of government to explore the synergies and roles and responsibilities of strategic policymaking can maximize the benefits and opportunities across governments. Engaging with other provincial and territorial governments to develop harmonized programs across entire regions, where possible, is important for programming to achieve economy of scale (e.g., for smaller regions such as Atlantic Canada or the North).
Procurement policy	Procurement policies to require certain amounts of recycled content in purchases of plastic products or packaging by all orders of government.
Enabling policy for market innovation	Research and development: funding research, development, pilot testing or commercialization of new technologies for alternatives to plastics or plastics reprocessing infrastructure to drive a circular economy. Innovation hubs or partnerships would be key.
Policy targeting single-use items	A policy or regulation that requires change for designated single-use items could have a strong impact (e.g., requiring all ICI facilities to use reusable cutlery in all cafeterias, such as in schools, hospitals, and commercial and industrial establishments).
Standards	
Recycled content standards	Requiring consistent recycled content standards across the country will drive a circular economy, creating a more stable, domestic market for reprocessing plastics.
Standardization: Streamlined resins	Requiring consistent resins in the production of plastic products will facilitate end-of-life recycling and reprocessing of more plastics. This includes disallowing harmful additives that lower the recyclability of plastic and result in materials that cannot be recycled, repaired or refurbished. It could be a first step in working toward greater implementation of EPR for new plastic product categories.
Engagement	
Convene key producers	The ability to convene large stakeholders has been demonstrated by the development of the Canada-Wide Action Plan on Zero Plastic Waste (CCME 2019).

5.0 SUMMARY

5.1 Comparison Overview of Instruments in this Document

Exhibit 10 presents each of the instruments and incentives included in this document, comparing the type of incentive (e.g., if there is an economic component to it or not) and the objective of the instrument along with each option's complementary programs and policies.

Exhibit 10. Comparison overview of instruments presented in this report

Instrument	Objective	Type of Incentive	Complementary Programs and Policies			
			EPR	Distribution Bans	Waste Policies and Performance Targets	Procurement Policies and Mandatory Recycled Content
Government Instruments						
Disposal bans	Waste reduction	Regulatory penalty (waste generators)	√	√	√	√
Levies: Point of sale	Waste reduction	Economic disincentive (waste generators)	√		√	
Levies: DRS	Waste reduction, waste diversion	Economic incentive (waste generators)	√		√	√
Levies: PAYT	Waste reduction, waste diversion, price waste higher than recycling	Economic disincentive (waste generators)	√		√	
Levies: Disposal facility	Waste diversion	Economic disincentive (waste generators)	√	√	√	
Other Instruments						
New applications for DRS to products and food	Waste reduction	Economic incentive (waste generators)	√	√	√	√
CE drivers and goals	Waste diversion	Economic incentive: improve recycling and compost markets (producers)	√		√	√
Return to retail plastic films	Waste diversion	Incentive: voluntary	√			√
Zero-waste grocery	Waste reduction	Incentive: voluntary		√	√	
Industry association guidance on reducing single-use plastics	Waste reduction	Incentive: voluntary	√	√	√	√
Reusable cutlery requirements	Waste reduction	Incentive: voluntary	√	√	√	√
Levies on disposable cups	Waste reduction	Economic disincentive	√		√	

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APPENDIX A: SAMPLE DISPOSAL FACILITY INSPECTION CHECKLIST FOR BANNED MATERIALS

Insert Jurisdiction or Disposal Facility Name

No.

Waste Discrepancy Report

Warning Rejection

Date: _____ Time:_____ Scale Ticket No. _____

Waste Hauler:_____ Driver's Name:_____

Truck No._____ # of Photos Taken:_____

Waste Generator:_____

The following materials were present in this hauler's load of waste in contravention of _____ site policy, Municipal policy, bylaws or regulations and/or Federal or Provincial statutes, laws or regulations:

- ❒ Construction & Demolition Debris
  - ❒ Inert ❒ Non-inert
- ❒ Recyclable Materials
  - ❒ Blue Bags ❒ Paper, Corrugated Cardboard
  - ❒ Plastic Bags & Wrap ❒ Containers
  - ❒ Newsprint, Flyers, Magazines, Phone Books
- ❒ Compostable Organics (including leaf & yard waste)
- ❒ Liquid Wastes or Sludges
- ❒ Explosive Wastes
- ❒ Dangerous/ Hazardous Wastes (compressed gas cylinders, flammables, oxidizers, toxics, corrosives or reactives)
- ❒ Used Oil
- ❒ PCDs or PCB-Contaminated Material
- ❒ Radioactive Materials
- ❒ Asbestos (friable)
- ❒ Biomedical or Infectious Wastes
- ❒ Animal Carcasses
- ❒ CFCs in heat exchange units
- ❒ Lead acid batteries, Waste paint or Antifreeze
- ❒ Tires
- ❒ Heavy Scrap Metals
- ❒ Contaminated Soils/Solids
- ❒ Wastes producing a toxic leachate
- ❒ International Wastes
- ❒ Material from Outside Municipal Boundary
- ❒ Other Wastes/Materials Incompatible with Facility Operations:_____

CONDITIONS:

1. *All loads are subject to inspection for unacceptable materials.*
2. *Waste Haulers and Generators are advised that_____ reserves the right to issue warnings, to reject unacceptable materials, to reject unacceptable loads or portions of loads and to recover additional waste management costs incurred due to the improper disposal of specific unacceptable materials by Haulers and/or Generators.*

Waste description, type and origin: _____

_____

_____

Region/Facility Operator Rep:_____