From Single-Use to Multi-Use: Evaluating the Opportunities for and the Challenges of Reusable Takeaway Packaging in Nova Scotia

March 2025

Prepared For:

divert NS
Nothing Wasted

Prepared By:

Marcus Goodick
EnviroCulture Consulting
Port Williams, NS
902.223.8296
marcus@enviroculture.net

enviroculture
CONSULTING

Table of Contents

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

Single-use food serviceware packaging is a big problem. From the negative environmental impacts resulting from ongoing resource use and littering to the economic costs caused by this never-ending stream of waste, a better solution to this throw-away culture is needed. Much of the work that has been done around waste management in the food service industry has focused on shifting from single-use plastics to alternatives such as paper bags and boxboard, and to bio-based plastics and compostables. However, substituting one type of single-use packaging for another is not the answer. A transition to multi-use/reusable food serviceware is needed and several innovative Canadian companies are leading the charge in this direction.

Although the implementation of multi-use/reusable food serviceware programs is growing, companies that provide reusables as a service currently don't operate in the Atlantic provinces. With companies starting to roll out reusable container services in other provinces it is important for Nova Scotia businesses and institutions to know how these programs function and what the opportunities and challenges of implementing these programs are.

Research shows that while different program models lend themselves to specific situations, whether that be "closed systems" for sports stadiums, "deposit refund" models for takeaway restaurants, or "lending" models for university cafeterias, each setup is unique and can be tailored to local conditions and business needs. Furthermore, standardization is key to improving the user experience and leads to better and simpler overall system performance across the board as more programs are introduced. In addition, the growth in high quality, purpose-built containers designed specifically to be reused will help in the transition to multi-use food serviceware.

Pilots can be a great way to learn about what works and what doesn't in specific situations. The pilot undertaken for this project at the Bedford Institute of Oceanography showed that there was a great deal of interest and support for reusables. At the same time the pilot highlighted some challenges such as the need to make the return process as simple and convenient as possible to encourage participation. The pilot also highlighted that while the return rate for the reusable wasn't as high as initially hoped, that the containers were not being discarded but rather kept for ongoing personal use.

Recommendations from the study encourage the province of Nova Scotia and municipalities to lead by example and implement reusable food serviceware programs in their own buildings and operations. Programs and policies should support a phased transition to reusables, starting by allowing patrons to bring their own reusable containers and then move towards mandating the use of reusables, particularly for in-house dining at food establishments. With a system-level approach and the necessary infrastructure in place, reusables provide a great opportunity to deliver a host of benefits including new local jobs, economic benefits for food service providers and municipalities, and litter prevention.

The Challenge

Millions of single-use containers are thrown away worldwide every day, many of which find their way into the world's rivers and oceans. Even recycling or composting these containers still results in the consumption of a large quantity of resources. According to Claudia Giacovelli, Programme Officer of the United Nations Environment Programme:

> It is the single-use nature of products that is the most problematic for the planet, more so than the material that they're made of. Countries are encouraged to promote actions that lead to keeping resources at their highest value in the economy, by consuming less and replacing single-use products with fit-for-purpose reusable alternatives for a healthier planet.

The report titled *Reuse Wins*, published by Upstream, includes the graphic shown in **Figure 1** which states that nearly one trillion disposable food-service packaging items are generated each year in the United States.

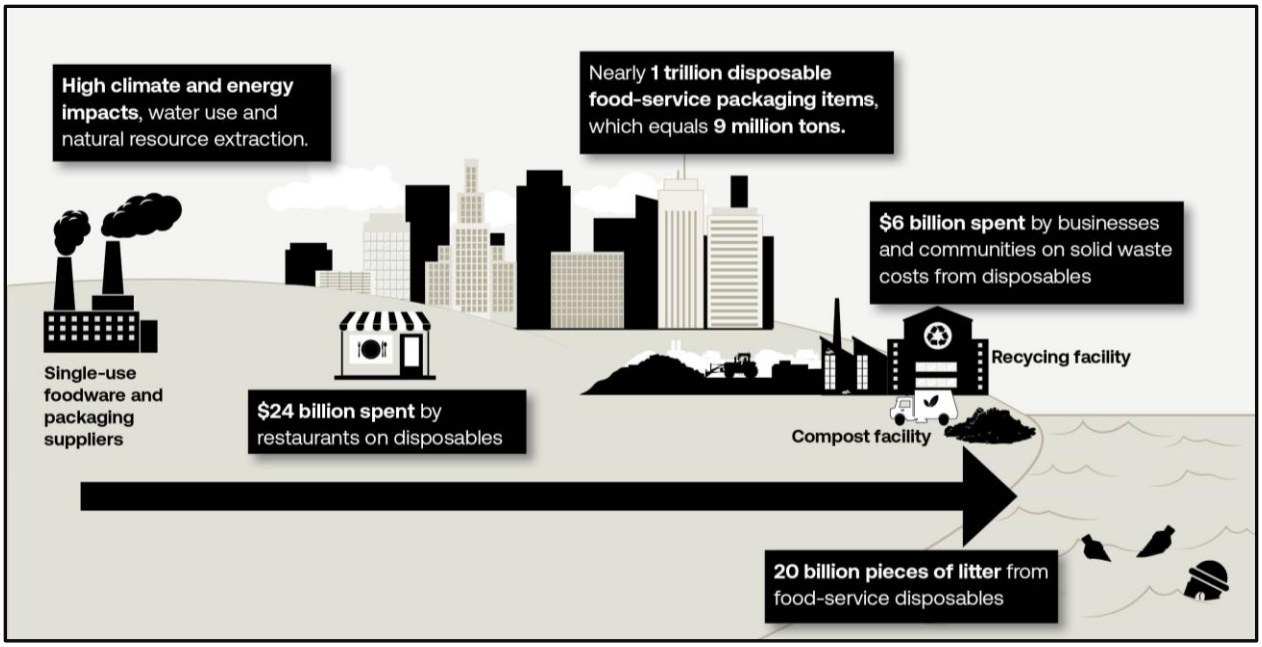

Figure 1. *Today's "one-way throw-away" food service model (Source: Upstream)*

While there is a great deal of qualitative evidence supporting the need to divert single-use packaging items from waste in Nova Scotia, there is little in-depth local quantitative data. As per the conversations with staff from Nova Scotia's Department of Environment and Climate Change, single-use food packaging is not something the department has formally measured. *Nova Scotia's Landfill Waste Audit 2023* does provide some insight into the tonnage of

"Disposable Cups" sent to landfill. Of the 323,733 tonnes of total waste sent to landfill, 1.22% was classified as "Disposable Cups", amounting to approximately 3,950 tonnes.

While some single-use packaging waste is compostable and recyclable, determining which packaging is and which isn't is confusing for experienced waste resource professionals and in particular, for individual Nova Scotia residents. There is also a great deal of "greenwashing" applied to various single-use packaging options and consumers are regularly bombarded with false environmental claims. Many heated discussions take place over "what goes where" for packaging waste such as single-use coffee cups and lids. Some argue that the cups go into paper recycling while others suggest the organics green cart even though these items typically belong in the garbage stream. Regional differences in the waste management programs across Nova Scotia and other parts of the country make these decisions even more challenging and confusing for longtime residents, newcomers, and tourists alike. As a result, contamination of both the recycling and composting streams is common and incurs operational costs and human resources in order for municipalities to continually educate residents with the goal to remove problem materials through secondary sorting.

***Figure 2**. The 2023 Dirty Dozen (Source: Ocean Wise)*

Another challenge with single-use packaging is that it often ends up as litter in our communities, lakes, rivers, and oceans. According to shoreline litter data collected by citizen scientists for Ocean Wise Shoreline Cleanup, single-use packaging makes up a significant quantity of the litter that gets collected each year with items such as food wrappers, coffee cups and lids regularly making the "Dirty Dozen" list as shown in **Figure 2**. The long-term monitoring that Ocean Wise has conducted does not show any significant improvement over time, even with numerous annual volunteer cleanups and ongoing efforts in education. Data from Nova Scotia's Adopt a Highway program shown in **Figure 3** illustrates a similar trend with single-use takeout cups and fast-food waste from companies such as Tim Hortons and McDonald's being in the top three list of what volunteers collect.

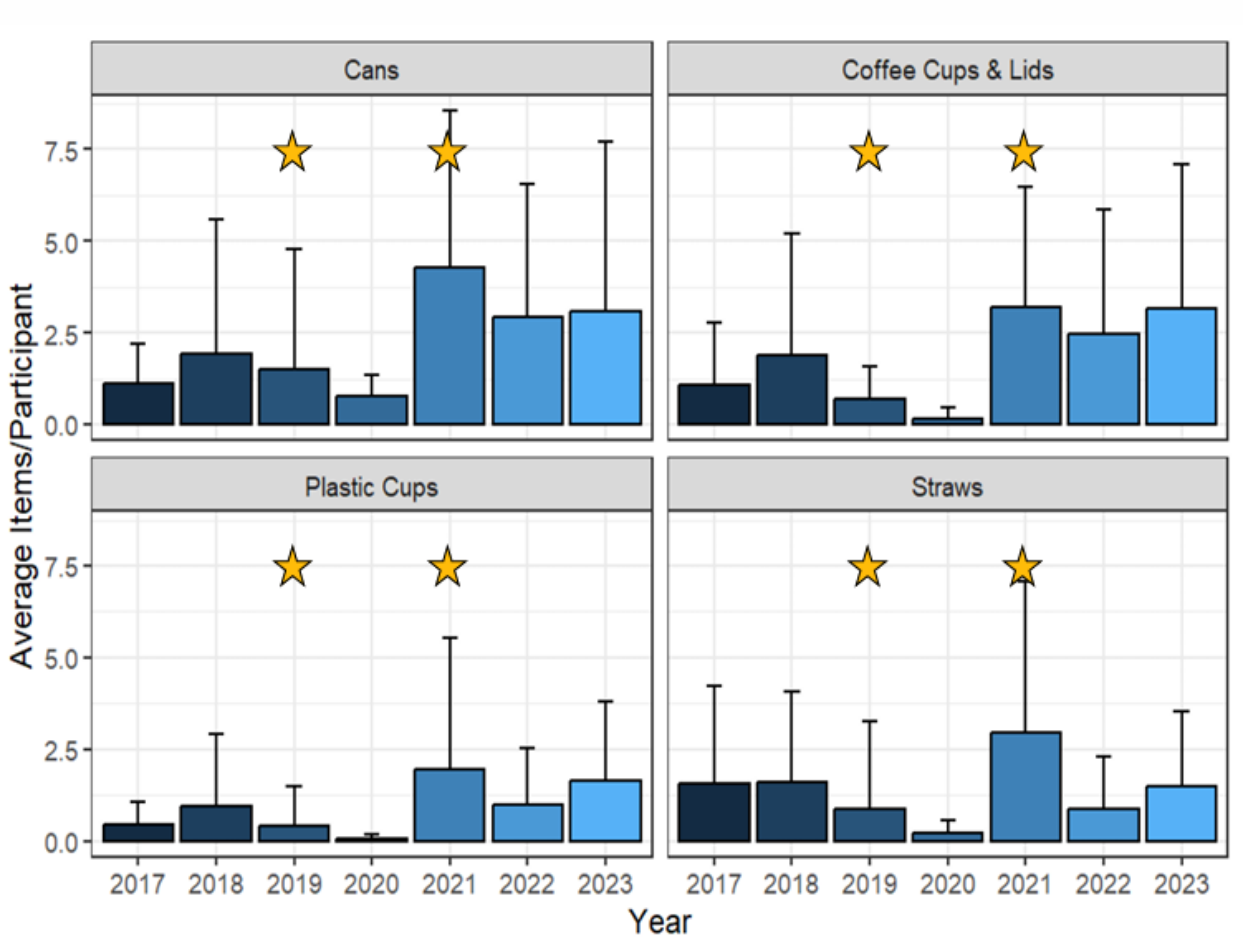

Figure 3. *Litter trends by material type (Source: Ocean Wise)*

Reusable Takeaway Food Service Container Programs

In an effort to transition away from single-use packaging several companies have introduced a variety of reusable packaging models. As per **Figure 4** from the Ellen MacArthur Foundation, these models are typically divided into four different groups based on how the reusable products are refilled and by whom. For reusable food serviceware, programs normally fall within the "Return on the go" quadrant which was the focus of this research.

Over the last five years there has been a steady growth of new businesses offering reusable containers as a service, making the transition to reuse easier, particularly in larger Canadian cities such as Vancouver, Toronto, and Montreal. Food and beverage establishments, such as restaurants, cafeterias, and cafes, looking to control spending and reduce the amount of waste they produce from offerings served in single-use packaging are gradually turning to reusable products where such services exist. These reusable items are typically made of plastic and stainless steel and are quite durable, allowing for 100 to 1,000 plus washes before being recycled

at end-of-life. For customers that make regular purchases as well as for those visiting for the first time, the opportunity for a business to offer these reusable container solutions has grown. The following is a list of nine of the more recognized companies which offer reusable container services along with one that recently shut down.

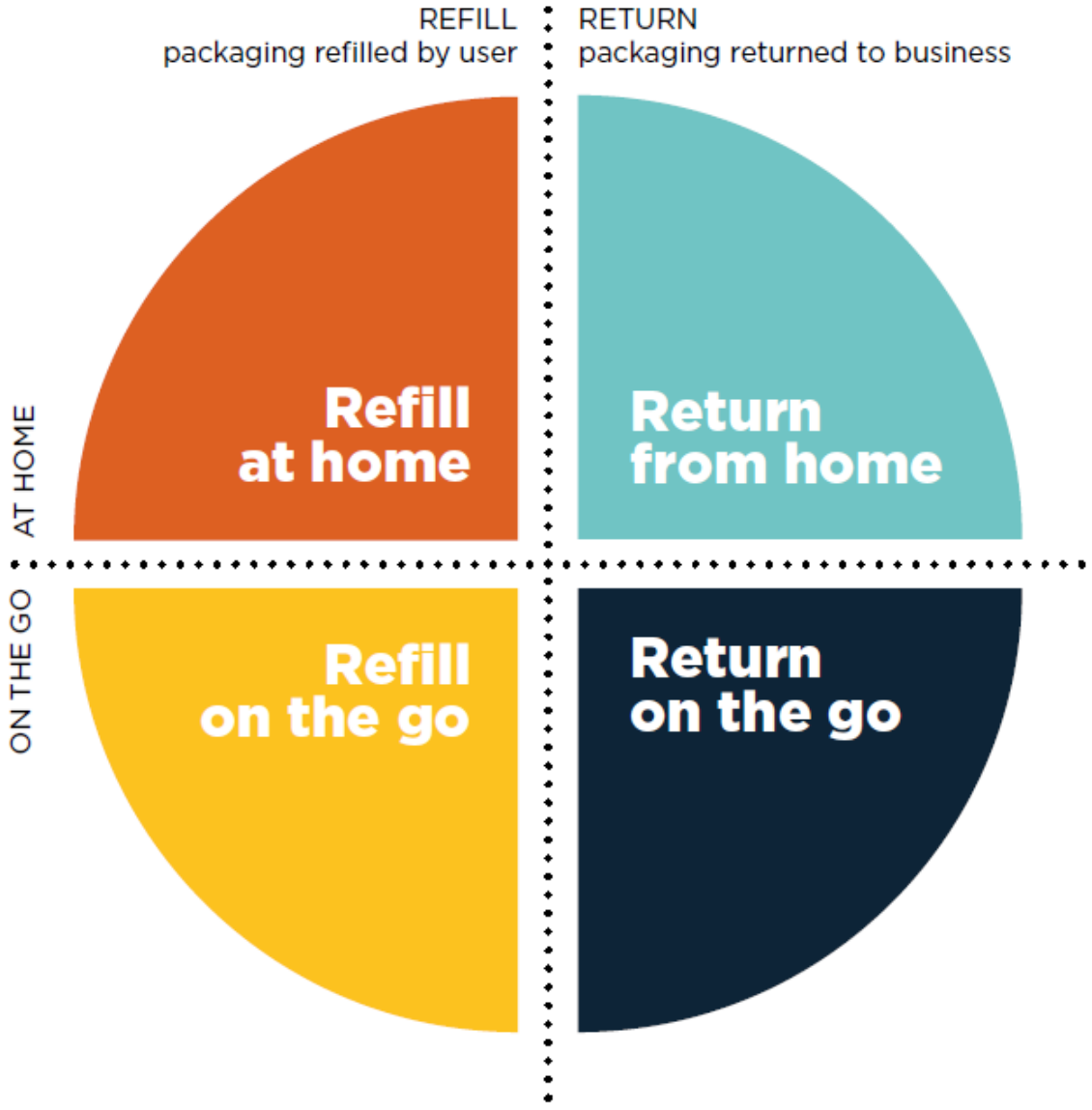

Figure 4. *Reusable packaging models (Source: Ellen MacArthur Foundation)*

Bopaq launched in November 2021 in the province of Quebec. The company operates primarily in Quebec and has more than 200 partners including restaurants, cafeterias, and catering companies, and also coordinate programs in the institutional, event, and ready-to-eat sectors. They recently launched a program at Ohio State University. Bopaq has washed more than 1.4 million units and has a greater than 90% return rate. They both sell and rent containers and provide a container collection and washing service in the Montreal area. Bobaq is also a founding member of the National Wash Network and manufactures some of their containers in Quebec.

Cano is a Quebec based company headquartered in Montreal. They are focused on helping companies and their employees make sustainable choices to improve their performance. One of the solutions they offer is reusable food service packaging which allows an app to reward users for taking sustainable actions like choosing reusable containers. Cano's website states, "if you do a positive action like opting for reusable packaging or saving a meal from waste, you'll earn points towards cool rewards!" Cano operated briefly in Nova Scotia with a program at St. Francis Xavier University in Antigonish.

Earthware was an Alberta based reusable container company which operated primarily in Calgary and Edmonton. They started in 2021 but went out of business in late 2024. Earthware's reusable program was deposit based with consumers paying a $0.70 deposit for a container with a lid and receiving a $0.25 cent refund back for the container and $0.25 back for the lid with $0.20 kept as a processing fee. Their program was unique in that they made use of the existing bottle depot network in Alberta as return partners. foEarthware's primary customers were restaurants, and they were part of the National Wash Network.

Friendlier is an Ontario-based company that operates primarily in the larger centers in Ontario, Quebec, and British Columbia. They have reused over 2.8 million containers since launching in 2019. Friendlier offers a full-service solution at a fixed price per unit that includes the use of the container, pickup of used containers, washing, and distribution back to the venue again for reuse. They operate their own wash facility in Guelph, Ontario. Friendlier has programs in restaurants, on university campuses, and at grocery stores.

La vague is a Montreal based not for profit that operates throughout the province of Quebec. The organization runs similar to a co-operative. They work with a network of over 450 member cafes and businesses who participate in the running of the organization. La vague sells a purpose-built hot beverage cup called La tasse for $5 that can then be filled and returned to any of the 450 partner sites for reuse. La vague is just starting the roll out both a made in Quebec version of their hot beverage cup as well as a range of returnable containers that are also manufactured in Quebec.

Muuse is an international company that operates in Singapore, Hong Kong, and Canada. They currently operate in more than 50 locations in Toronto and more than 10 locations in Banff. Through their app, a user can borrow an unlimited number of containers for up to 30 days. If a borrowed container is not returned within 30 days, the user is charged the replacement cost for the container. Muuse also operates a reusable container rental program for special events, primarily in the Toronto area. The event organizer can either manage the program themselves or engage Muuse support staff to help with collection and education. At the end of the event Muuse will wash the returned items for reuse at the next event. They are also members of the National Wash Network and have their own wash facility in Toronto.

Retournzy is a co-operative enterprise founded in Montreal that operates in Quebec. They promote the use of stainless-steel containers and have designed a unique stainless steel four compartment reusable lunch box with a polypropylene plastic lid that is manufactured in Quebec. Retournzy typically owns the containers and offers them as a shared resource among all users of the network for a $9 deposit. They offer a full suite of services including collection, washing/sanitation, and distribution with the deliveries made by cargo bike.

Reusables, founded in Vancouver in 2021, focuses primarily on the large institutional market such as university campuses. They promote themselves as a technology company that is container agnostic with one of their strengths being their ability to assign containers to users using RFID and QR tracking to ensure return rates as high as 99%. Their systems are integrated with many of the leading smart card suppliers so at universities students can simply use their student cards for all reusable container transactions. They were also the partner of choice for the Circular Innovation Council's reusables pilot with grocery stores in Ottawa.

Sharewares is a Vancouver company that offers a city-wide borrowing platform for reusable packaging. Businesses pay a wash fee and a deposit for the reusable items. This deposit is passed along to the customer when they borrow the containers. When a customer returns the borrowed container, Sharewares picks them up, washes, and inspects them before being redistributed for reuse again. Sharewares also works with event venues and organizers in Vancouver to supply reusables and is a founding member of the National Wash Network.

Suppli is an Ontario company whose services are used by more than 100 restaurants across Toronto. They have integrated with delivery companies such as Uber Eats. When an online food order is placed, the customer can request to have their food delivered in a reusable container. There is a $0.75 fee for this service and customers are charged if the containers are not returned within 15 days. Suppli collects the containers daily from drop-off bins located throughout the city and takes them to be cleaned at a centrally located commercial dishwashing facility.

The company overviews provided above illustrate various operational models being implemented which can fit into the following three categories.

1. A “closed system model” for reusable food serviceware that is used internally at large venues such as sports stadiums or office cafeterias and never leaves the premises
2. A “deposit refund model” where a deposit is charged for the reusable food serviceware at the point of sale and refunded when the items are returned
3. A “lending model” where no fee is charged for the reusable food serviceware at the time of food or beverage purchase, but a charge is levied after a set period, typically 14 to 30 days, to cover the cost of the reusable food serviceware if it is not returned

Ownership models for food serviceware also vary. In some cases, items are owned by the food service establishments. In other cases, items are owned by the reusable container service companies and offered as a fee for service model, which typically includes the use, collection, washing, and redistribution of the cleaned food serviceware. An example of this for Friendlier is shown in **Figure 5**. The prices shown for their products, such as the $0.35 price for a 28 oz rectangular container, would be a fee to collect, wash, and redistribute the item for reuse. The required deposit amounts are also shown. These would be charged to the consumer when they purchase their food item or beverage in the specified container and this amount is reimbursed by Friendlier when the container is scanned at their wash facility.

An example of Reusables’ lending model is shown in **Figure 6**. In this case there is no upfront charge/deposit for the containers, and they are “assigned” to a customer by scanning a QR code or RFID chip and “checked back in/unassigned” when returned to a Smart Return location. This process gives Reusables visibility to these “assets” at a number of points along the supply chain and to can allow them to track and manage inventory levels by container type in real time and process delivery orders as needed.

Figure 5. *Product list showing price with pickup, washing, and redistribution (Source: Friendlier)*

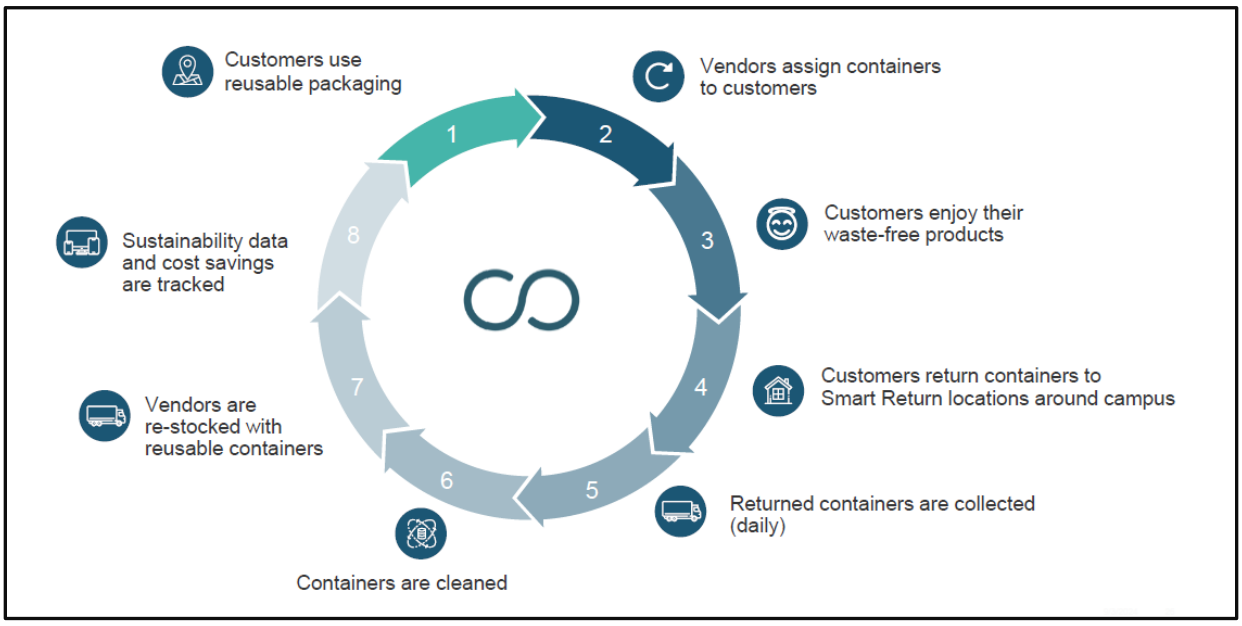

Figure 6. *Circular lending model for reusable containers (Source: Reusables)*

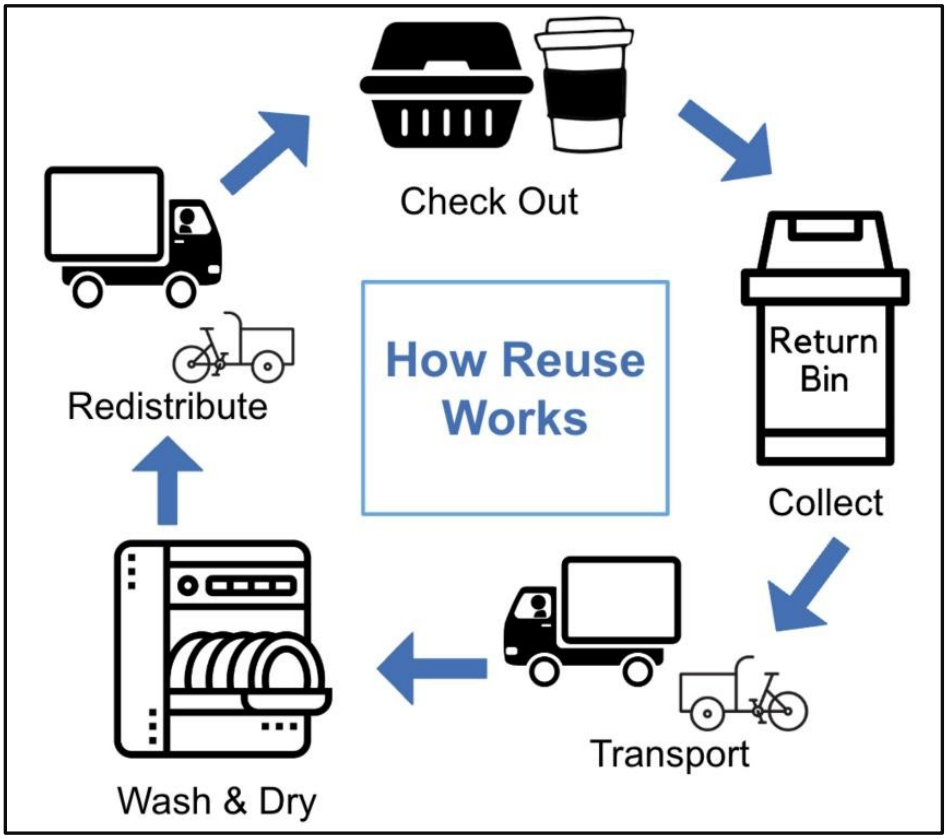

Figure 7. *How reuse works - Off-site washing model (Source: Perpetual)*

As per **Figure 7 and Figure 8** another difference between programs is where the washing occurs. If a facility does not have the capacity to wash the reusable items or does not see that as part of their core business, they could opt to pay for this service. For many coffee shops/cafes that already have a dishwasher, they might choose to wash their reusable cups on site as per La vague's model shown in **Figure 8**.

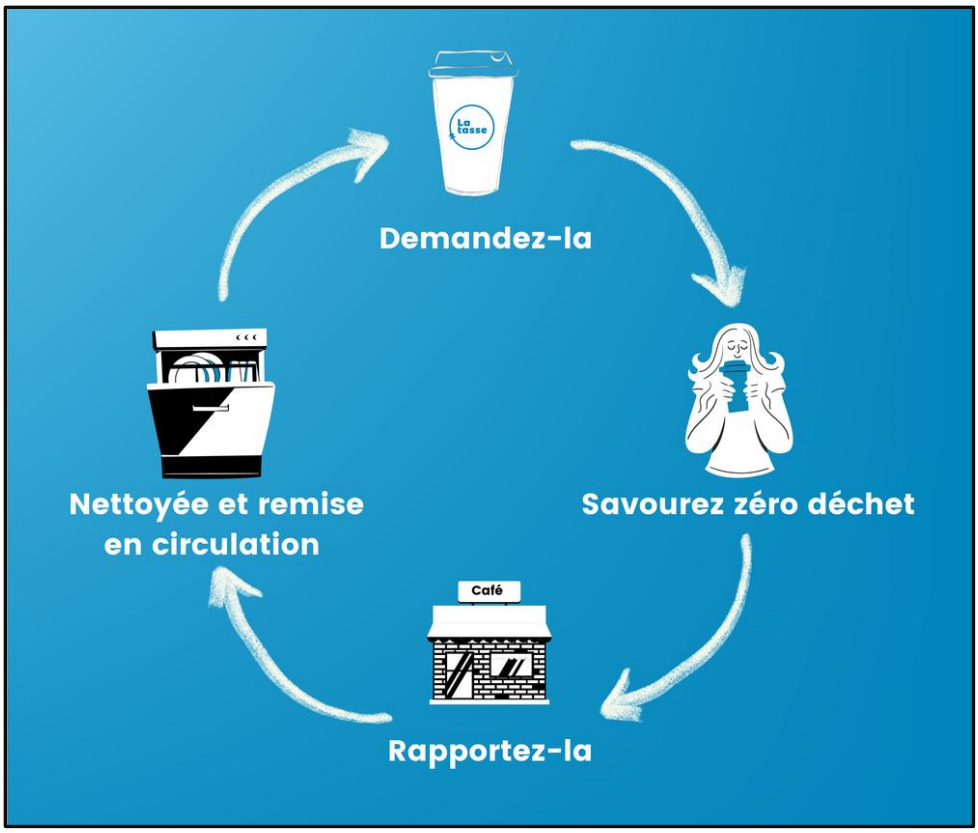

Figure 8. *How reuse works – on-site washing model (Source: La vague)*

As pictured in **Figure 9** from Upstream, large-volume anchor venues can be key in helping to establish new reusable food serviceware programs. By creating demand at scale these venues can justify the capital investment needed for a wash hub where containers can be tracked, washed, sorted, and redistributed back to their respective owners/programs. To date these anchor tenants have been large entertainment/sports facilities such as BC Place in Vancouver that partnered with Sharewares and many of r.World's clients in the United States including theatres in Denver, Los Angeles, and Seattle and L.A. Memorial Coliseum. In Nova Scotia this anchor tenant could be a large venue such as Scotiabank Arena or a university such as Dalhousie or Saint Mary's. Another anchor tenant possibility would be a large food service program such as the Nova Scotia School Lunch Program. Phase 1 offers lunches five days per week to more than 75,000 students across 255 schools in the province and is expected to grow to 373 schools by Phase 5.

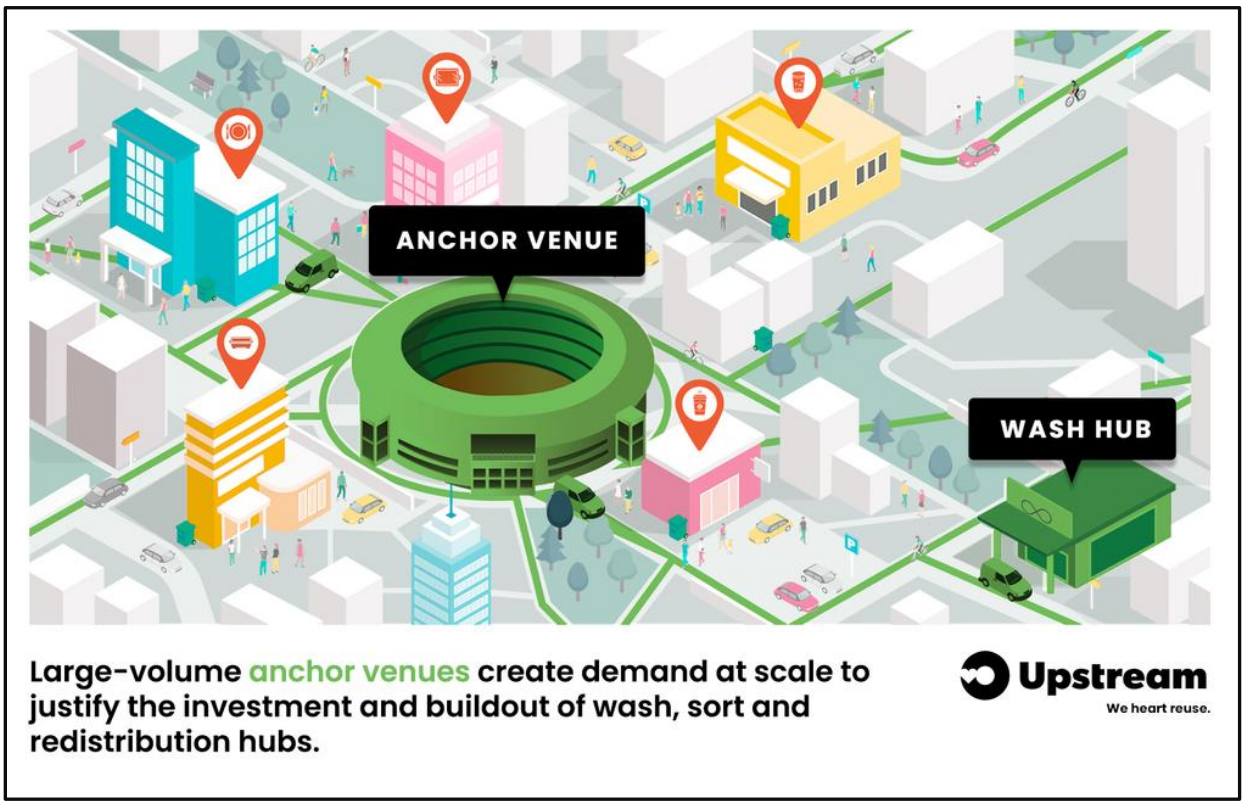

Figure 9. *Large volume anchor venue (Source: Upstream)*

To help facilitate the washing needs for reusable food serviceware four of the companies offering reuseable container programs, Sharewares, Bopaq, Muuse, and Earthware, established the National Wash Network in Canada. These wash facilities help to ensure a high standard of cleanliness/sanitization for all users and provide economies of scale to new business looking to enter the reusable container market. At this point there are no National Wash Network locations east of Montreal.

Standards

An important consideration when implementing a program for the first time is standardization. Ideally, multiple jurisdictions in Nova Scotia, Atlantic Canada, or even across the country could implement reusable container programs in concert following a consistent set of standards for collection bins, messaging, and cleanliness. A not for profit in the United States called PR3 has taken on the task of developing common standards for reusable containers that are being developed through a bi-national agreement between RESOLVE, an international non-governmental organization, and the Canadian Standards Association (CSA Group). As shown in **Figure 10,** standards have been divided into seven documents that are at various stages of development. According to their website,

> "PR3's standards are set by a global consensus body with over 80 organizations representing industry, government, and civil society. PR3 is accredited as a standards developer by the American National Standards Institute (ANSI). PR3 also works in cooperation with the Canadian Standards Association (CSA Group) to publish and adopt the standards bi-nationally."

Standards Documents

RES-001: Container design and performance

RES-002: Container washing, inspection, and packing for distribution

RES-003: Marking and labeling of reusable containers, collection points, and signage

RES-004: Digital

RES-005: Systems Operation and Performance (coming soon)

RES-00X: Collection Points

RES-00X: Return Incentives (coming soon)

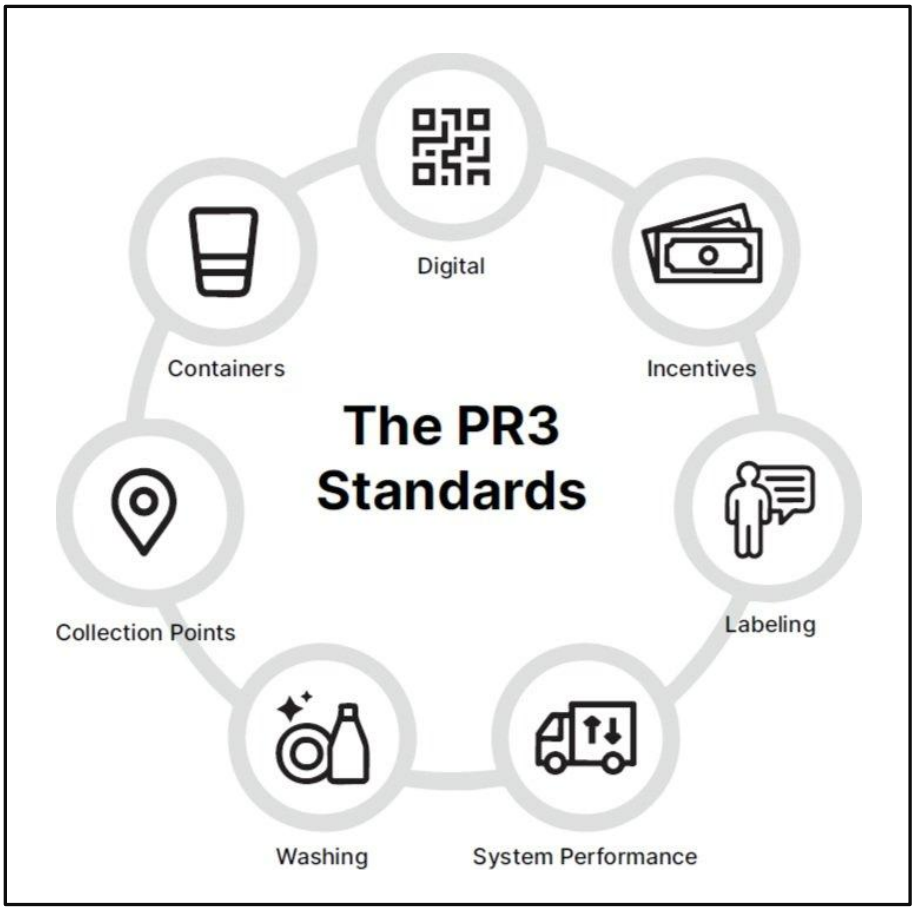

Figure 10. *The seven parts of a reuse program for which PR3 has developed standards (Source: PR3)*

As more reusable programs are adopted, it will be key to use a colour standard, whether that be for signage, collection bins, or branding of reusable products themselves. In Nova Scotia residents have been educated to recognize container colours as black for garbage, blue for recyclables, and green for organics. While PR3 was initially promoting orange for reusables, some programs have also been using purple which poses a challenge of limited availability of bins/containers in this colour. Ideally, as more reusable programs are implemented, one easily recognizable colour could be adopted, ensuring the availability of the supporting infrastructure in the chosen colour is readily available.

Figure 11. *Messaging on containers to indicate they are to be returned for reuse*

Messaging is an important part of any reuse program. Containers should be clearly marked to indicate that they are reusable and that they are to be returned for reuse. **Figure 11** shows a variety of examples of reusable products that have been clearly labelled to indicate that they should be returned.

Messaging on return bins must also be clear to indicate where the reusable containers are supposed to be returned to. **Figure 12** shows a variety of bins with messaging to indicate they are for reusable items. As shown, there is little consistency at this time between various program's collection containers and messaging. Containers shown are from separate programs operating across different cities in North America. If each of these spread to new municipalities across the country, confusion will likely ensue.

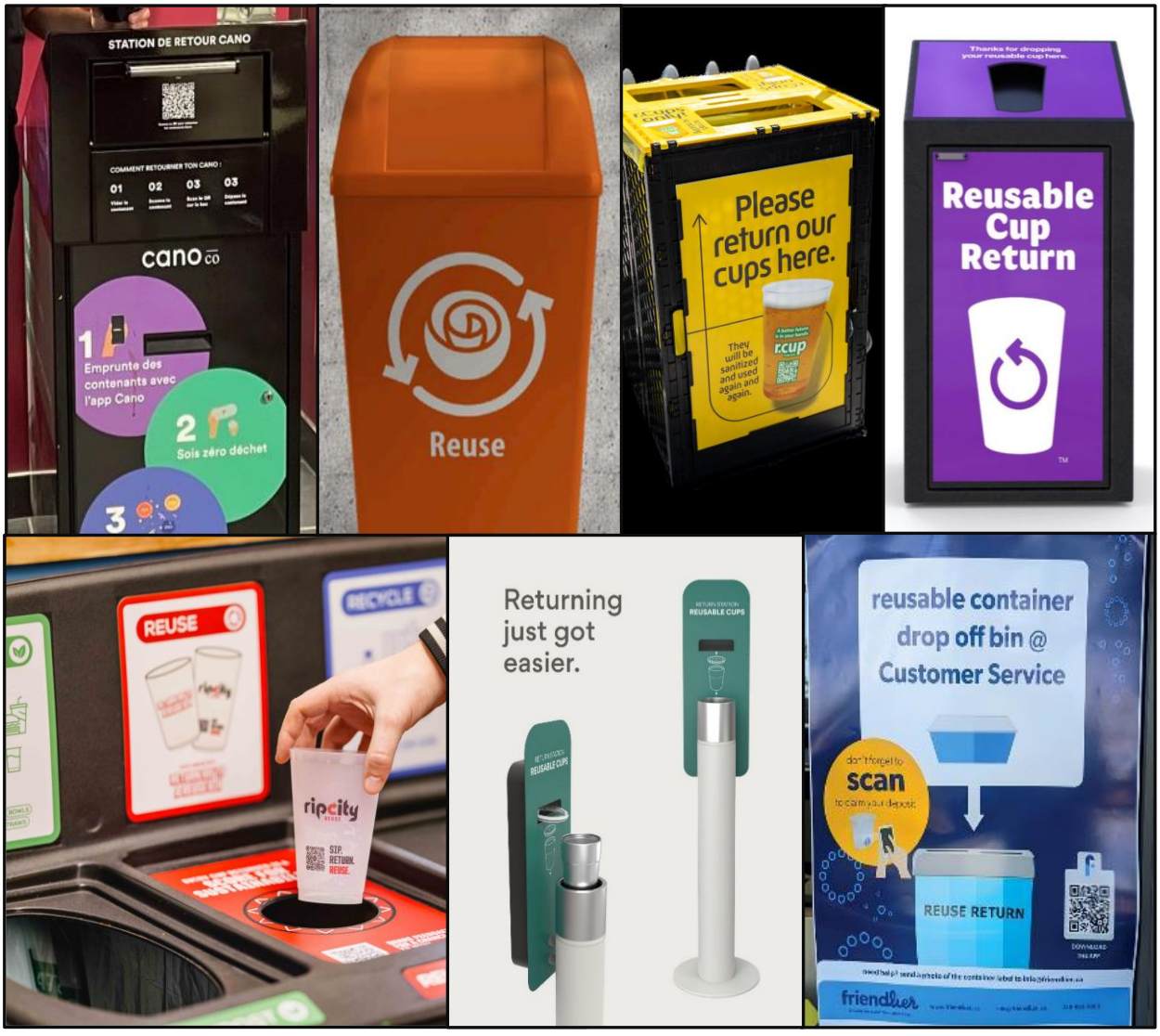

Figure 12. *Assorted bins for the collection of reusable containers*

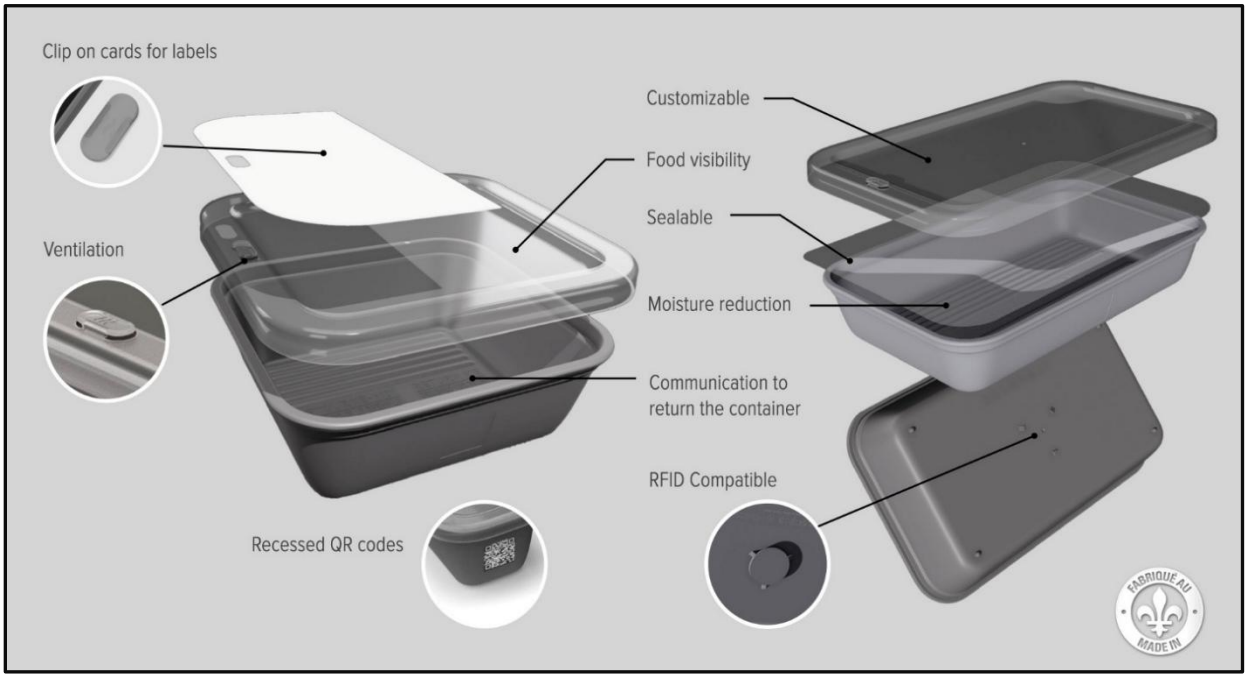

Figure 13. *Reusable container line manufactured in Quebec for Cambium (Source: Cambium)*

Cambium designed a new purpose-built reusable container as shown in **Figure 13.** The containers include the following features:

- Designed and manufactured in Quebec
- 100% food grade recyclable polypropylene (#5)
- Clear messaging on the container to indicate that it is reusable and is to be returned
- See through lid for clear visibility of food
- Ventilation tabs so steam from hot foods can escape
- Matte finish to reduce visible wear
- Clip on cards to be used for company brand labelling or to indicate contents and ingredients. Simplifies washing and allows containers to be circulated to multiple businesses.
- Customizable lid so company branding can be added for a large bulk order
- Solid seal between container and lid to prevent accidental spills and ensure long life
- Corrugated bottom to keep food/product crisp and away from any potential liquid, eliminating the need for a single use absorbent pad/meat diaper
- Highly durable recessed QR codes or logos can be imprinted at the time of manufacture which will perform better than printed stickers through multiple wash cycles.
- Compatible with industry standard RFID chips which are used for container tracking by some reusable container programs
- Fully nestable to reduce space requirements when transporting and storing

- Available in 3 sizes that stack neatly and conveniently on top of each other for ease of transport and handling
- Rounded corners with no sharp edges to promote effective cleaning and sanitizing

Performance Considerations

There are a wide variety of factors that come into play when considering the environmental implications of single-use versus multi-use packaging. A few of these include the type of material the packaging is made from, where it is made, how much recycled content is in the packaging, transportation both to the use location as well as to end-of-life management facilities, and how the packaging is managed throughout its life if reused or at end-of-life for each various packaging type. However, all of the waste management hierarchy diagrams and circular economy graphics include reuse as a preferred option to single-use.

When looking at the carbon footprint of reusables, Upstream's *Reuse is a Climate Solution* document states that, "quality reusables rapidly offset their initial carbon footprint." As shown in **Figure 14** from a life cycle analysis on coffee cups, a polypropylene cup, which should be good for between 100 and 500 plus uses, has a carbon equivalent break-even point of approximately 30 uses versus a single-use disposable cardboard and polyethylene cup with a polystyrene lid.

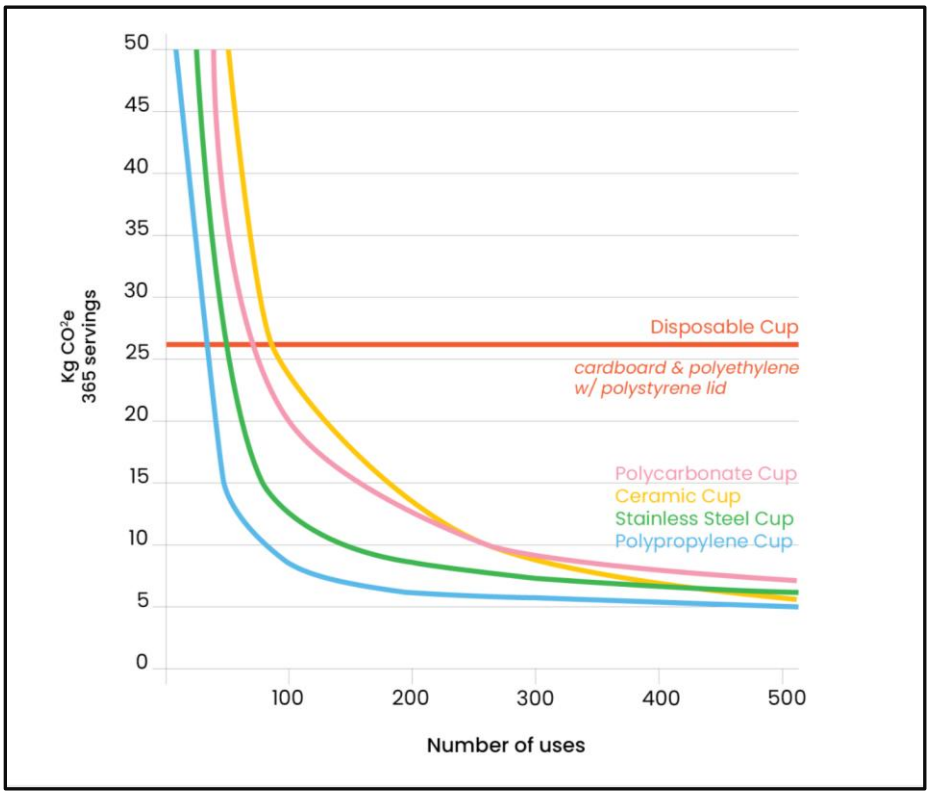

Figure 14. *Quality reusables rapidly offset their initial carbon footprint (Source: Upstream)*

Another way to look at this is that single-use products consume resources and have a climate impact at each stage of their lifespan. Since they are used only once these impacts accumulate significantly over time. Reusable products on the other hand typically have a larger impact at the time of manufacture but these impacts are reduced dramatically after each use as they are spread out over the life of the product. According to Upstream's *Reuse is a Climate Solution* document, which evaluated coffee cups, "reuse cuts carbon emissions by 79% across the value chain as shown in **Figure 15**.

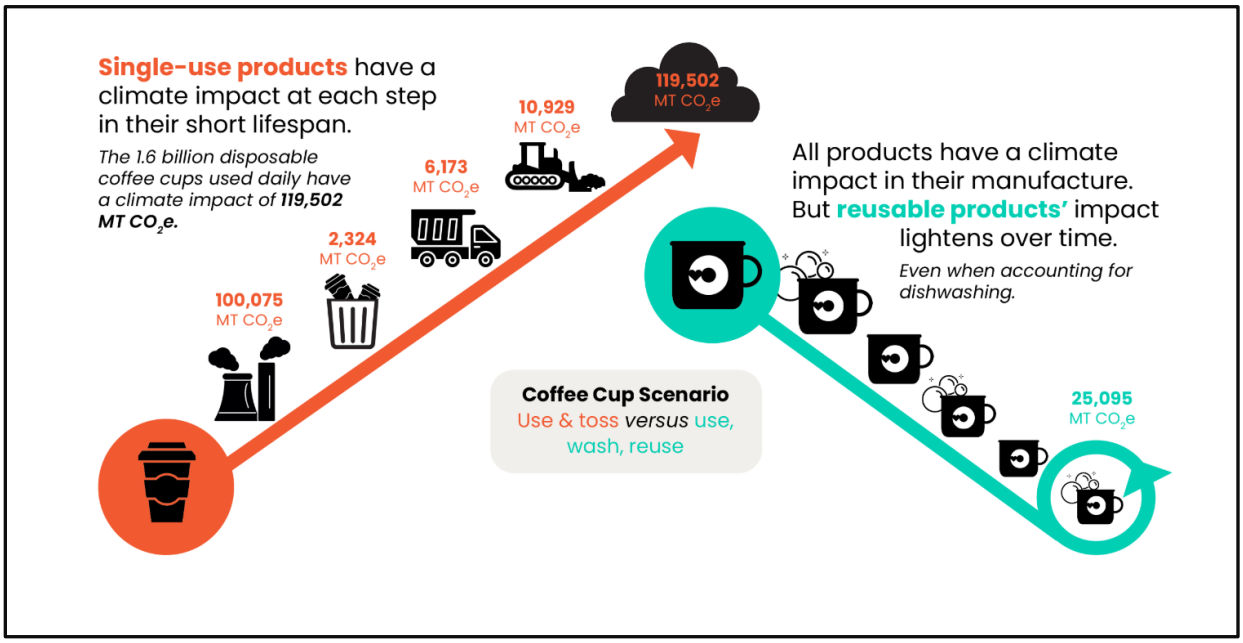

Figure 15. *Climate impact of a single-use versus a reusable coffee cup (Source: Upstream)*

The return rate is one of the primary measures of success for a reuse program. This percentage is calculated by dividing the number of returned items by the number of items used over a specific time period. The Green Sports Alliance Reuse Playbook provides the following key insight into understanding a return rate:

> It is intuitive that reusable items must be used multiple times to surpass single-use items economically and environmentally. However, the math behind the Return Rate Curve reveals a crucial, often overlooked truth about reuse, while a minimum number of uses is needed to break even in impact, the return rate also dictates a maximum average number of uses.

As shown in **Figure 16** a 90% return rate achieves 10 uses on average while a 95% return rate achieves 20 uses on average. Another way to look at this is, in a system with 100 cups, a 90% return rate results in 90 cups returning after the first use, 81 cups returning after the second use, 73 after the third use, and so on leading to an average of 10 uses per cup. This demonstrates that

for a system to be successful and not deplete its inventory, a high return rate needs to be achieved.

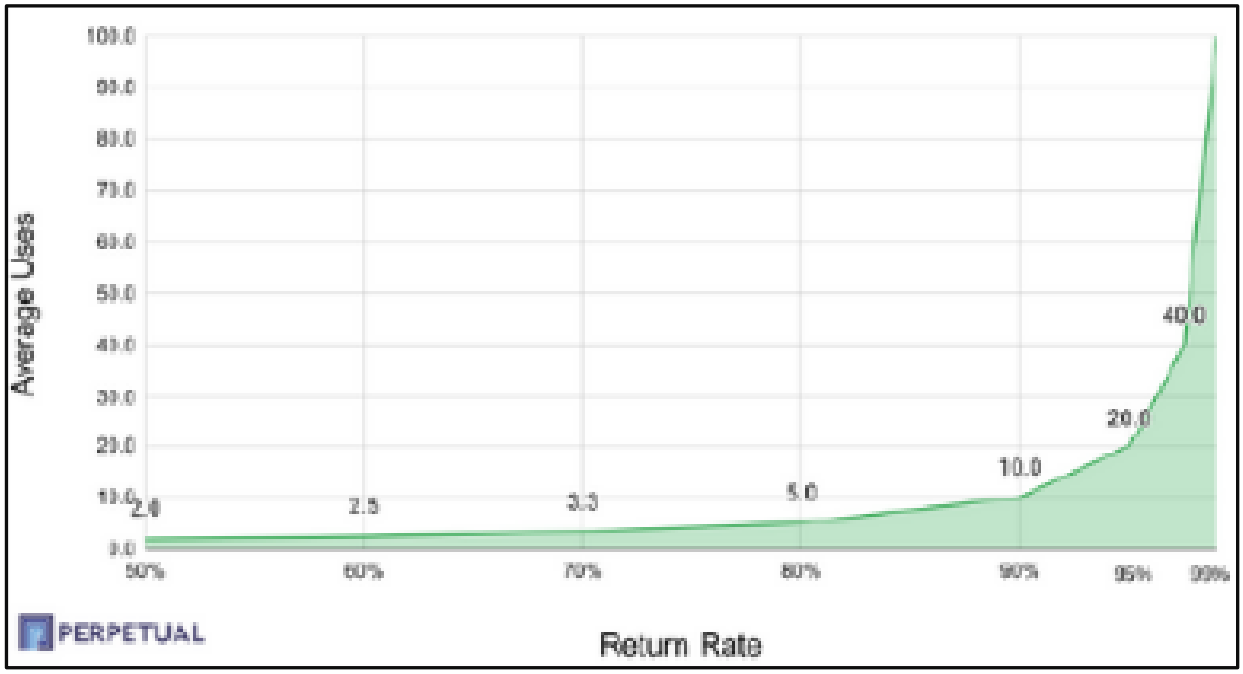

Figure 16. *Impact of return rates on average number of uses (Source: Perpetual)*

Understanding return rates and average uses also plays a role when selecting reusable packaging for specific types of reuse systems and determining how durable the reusable packaging needs to be. In an article by Closed Loop Partners on Debunking Durability, the argument is made that designing packaging to last up to 1,000 reuse cycles drives up the cost of the reusable packaging as well as the environmental footprint, especially for systems that are not achieving the high return rates needed to use the package hundreds of times on average. Instead, they suggest that the needed durability of the packaging should be aligned with actual return rates and use cases in mind.

Another important consideration when thinking about return rates is that just because a reusable item is not immediately returned does not mean that it was disposed of or that its useful life has ended. Many high-quality reusable items, while no longer being used specifically in the reusable program they were removed from, are still being regularly reused. One example of this is Banff Borrow's stainless steel coffee cup. While users of the program were charged $15 for non-returned cups, program managers discovered that these high-quality cups were sought after as tourism souvenirs and were being used as people's everyday coffee cup.

Legislative Instruments

Policies and by-laws are important tools that Federal, Provincial, and Municipal governments should be using to help promote the transition from single use to multi-use food serviceware. However, these regulations often only focus on one aspect of single use such as the Federal *Single-Use Plastics Prohibition Regulations (SUPPR)*. While the intentions behind this regulation were sound, targeting just single-use plastic items rather than all single-use food serviceware resulted in strong pushbacks from the plastic's industry lobby, ultimately resulting in a court challenge.

In 2018 a staff report to Halifax's Environment and Sustainability Standing Committee included recommendations targeted at reducing the consumption of single-use items in the municipality. At that timd the standing committee bowed to industry pressure, voted separately on the four recommendations, and only approved the two that would result in little to no change for the industrial, commercial, and institutional (ICI) sector. The two recommendations aimed at changing the status quo on the use of single-use food service packaging were defeated.

The province of Nova Scotia showed a similar lack of leadership on the issue. While they introduced *"An Act to Reduce the Use of Plastic Bags and Other Single-use Products"* in 2019, the Act did not include any actions to reduce anything other than plastic bags. The Act simply included Section 10(1) for show and stated that "The Governor in Council may make regulations" and included some sub-sections such as (c) which stated, "respecting the production, provision, distribution, use, restriction, and prohibition of single-use products or classes or types of single-use products." In other words, we can choose to regulate single-use products, but we don't.

Other jurisdictions such as British Columbia have introduced *"Provincial Policy on the Use of Reusable Food Containers in Food Premises in British Columbia."* This policy stipulates handling requirements which allow both the food premise and the customer to supply reusable containers if they so choose. The City of Toronto *By-Law 68-2024 Single-Use and Takeaway Items*, which took effect in March of 2024, similarly states (but only for beverage cups) that, "Every retail business establishment operator shall permit the use of a reusable beverage cup by a customer to hold beverage purchased or obtained by a customer at the retail business establishment." The town of Banff Alberta has a similar bylaw titled the Single-Use Item Reduction Bylaw, which took effect in January 2024. Their bylaw specifies that select businesses must have a written "Customer Reusable Foodware Policy" that, "permits Customers to supply their own Reusable Foodware in which the Business can serve food or drinks to the Customer."

Banff's bylaw goes one step further and also requires that specific food establishments, "that provide food or drinks to Customers must provide a minimum of 10 seats for consumption on the Business Premises and must provide the food or drinks provided to Customers for consumption on the Business Premises in Reusable Foodware." Similarly, Victoria, British Columbia recently

introduced the *Single-Use Items Reduction Bylaw* which addresses a number of issues related to single-use accessories. This bylaw comes into effect in March 2026 and stipulates that, "businesses that provide food or beverage to customers for consumption on the premises of the business must serve the food or beverage using reusable food service ware," with some limited exceptions. For a comprehensive list of Canadian and US policies that drive source reduction and reduction of single-use products and packaging, and especially policies that concern institutional reuse, visit Upstream's Policy Tracker. Upstream has also drafted model ordinances for food serviceware and foodware packaging reduction that are helpful for regions looking to implement these types of policy changes.

Extended Producer Responsibility (EPR) is another imporant tool that can be leveraged to shift businesses away from single-use packaging. According to the Governent of Canada, EPR, "is a policy approach in which the producer's reponsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle." In other words EPR shifts the reponsbility for managing end-of-life packaging away from municipalities and general taxpayers and back onto the producers. The province of Nova Scotia introduced EPR legislation in 2023 that comes into effect for producers on December 1, 2025.

Nova Scotia's legislation which is titled *Extended Producer Responsibility for Packaging, Paper Products and Packaging-Like Products Regulations* defines a "packaging-like product" as:

> a product that is ordinarily used for the protection, containment, handling, delivery, presentation or transportation of a commodity or product and includes items such as aluminum foil, metal trays, plastic film, plastic wrap, ***food containers***, wrapping paper, paper bags, ***beverage cups***, plastic bags, cardboard boxes and envelopes.

This means that single-use food serviceware packaging is included in the EPR regulations for NS. Circular Materials is the Producer Responsibility Organization, PRO, that is tasked with the responsibility of managing the packaging that companies use in NS. According to their website, "Circular Materials' mandate is to advance the circular economy and build cost effective innovative recycling systems where materials are collected, recycled, and returned to producers for use as recycled content in new products and packaging." As per **Figure 17** they proclaim that, "this initiative exemplifies a true circular economy that keeps materials looped in the system to be used again and again."

This approach is barely above status quo, and recycling, even though technically possible in a closed loop, is definitely not aspirational from a circular economy performance perspective.

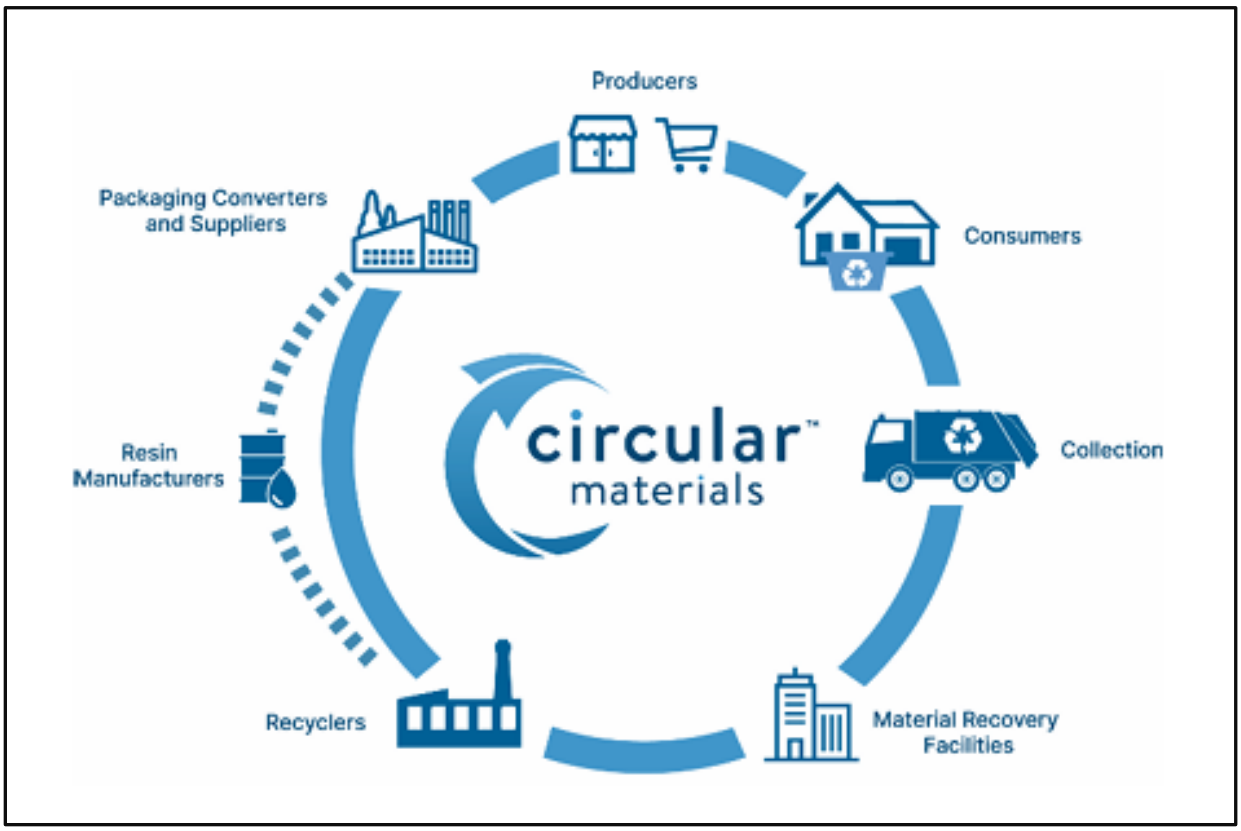

Figure 17. *Resource flows in the circular economy (Source: Circular Materials)*

Figure 18 from the Ellen MacArthur Foundation is more widely referenced to picture the resource flows in a circular economy and the smaller the resource loop the better the environmental performance achieved. Recycling is shown as the largest loop whereas sharing of quality reusable products in one form or another are promoted as better options in the inner circles of **Figure 18**.

Another way to visualize this is shown in **Figure 19**. This model suggested by the PBL Netherlands Environmental Agency (2017) defines ten strategies for circularity that can be used to build a successful circular product. The strategies align very closely with those from the Ellen MacArthur foundation and show recycling near the bottom of the circularity strategies, just above the linear economy. Reuse in its various forms is much higher in circularity and depending on the reuse system sits at or near top of the circular economy hierarchy at R0 or R1 since a reusable container is “offering the same function with a radically different product” or at the very least making the product use more intensive with sharing systems.

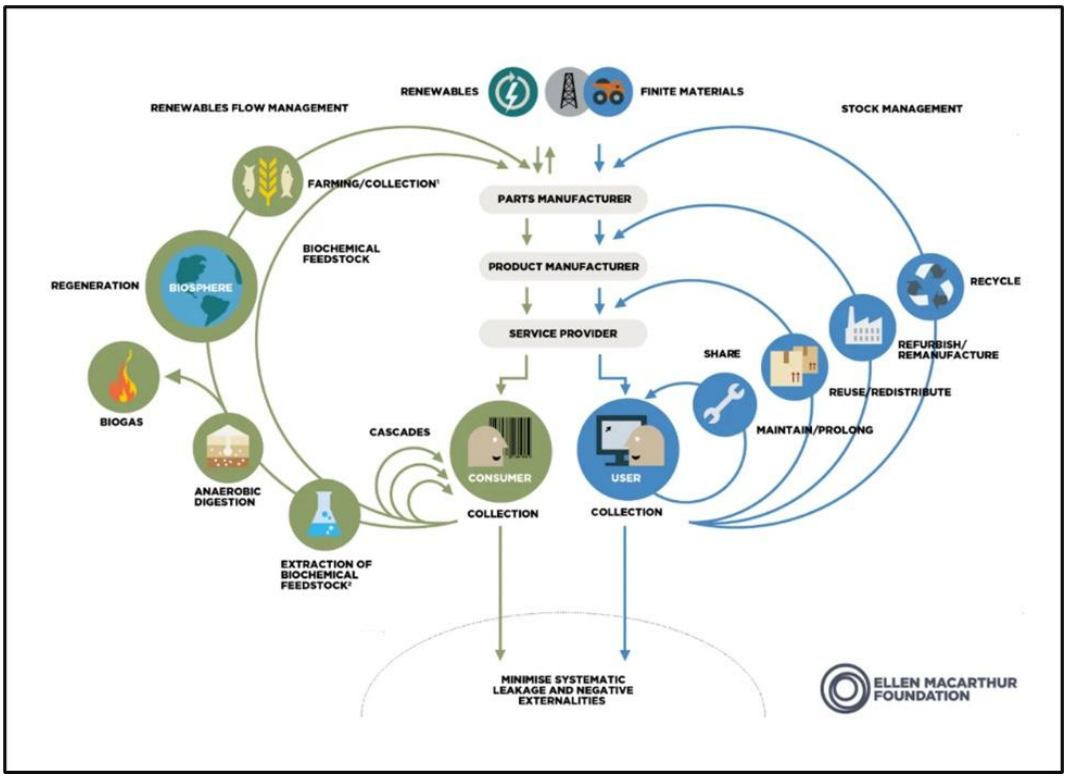

Figure 18. *What is a circular economy? (Source: Ellen MacArthur Foundation)*

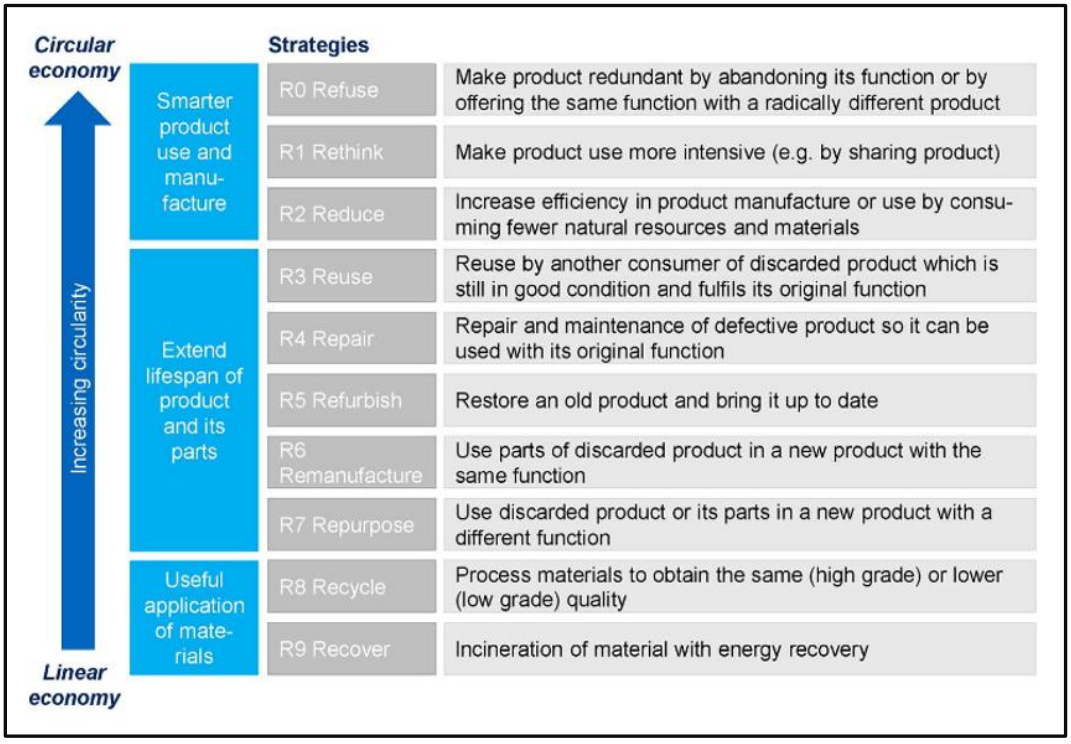

Figure 19. *Ten strategies for circularity (Source: PBL Netherlands)*

While most Canadian EPR regulation does not yet promote reuse, there are some early efforts in the United States to do so. A 2025 report from Upstream titled *The Vision and Playbook for Reuse in EPR, Expectations for a Best-In-Class PRO* provides a detailed look at how reusables are being addressed in US EPR programs.

According to Upstream's report, a best-in-class PRO should employ four reuse strategies:

- Adopt a long-term vision and set consistent program goals;
- Offer incentives and technical assistance to producers choosing reuse;
- Provide direct funding for reuse systems; and
- Maintain transparency.

As illustrated in **Figure 20** from Upstream's report the PRO should include reusable packaging in EPR programs and charge a base fee for this packaging; however, "the cost to introduce reusables should be lower than the cost to introduce single-use packaging."

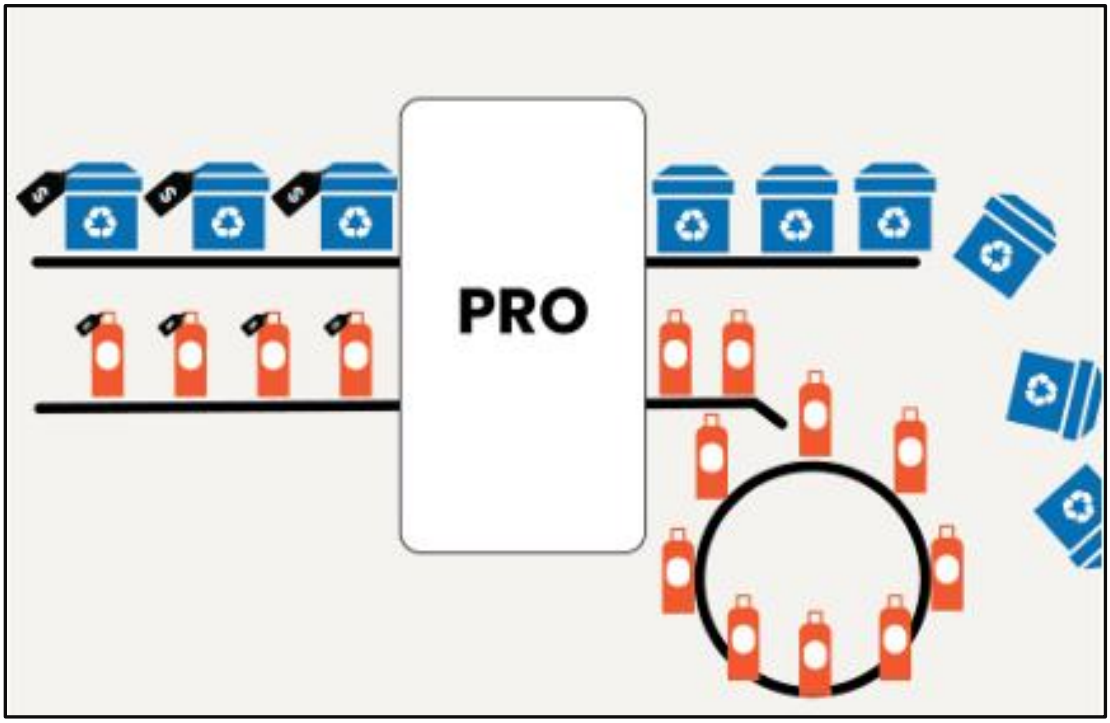

Figure 20. *Keeping EPR costs lower for reusables (Source: Upstream)*

Upstream's report also recommends leveraging existing recycling infrastructure where possible, including deposit refund systems such as the Enviro-Depot™ network in Nova Scotia. This is illustrated in **Figure 21**. A benefit of this approach should be Regional shared interoperable reuse infrastructure.

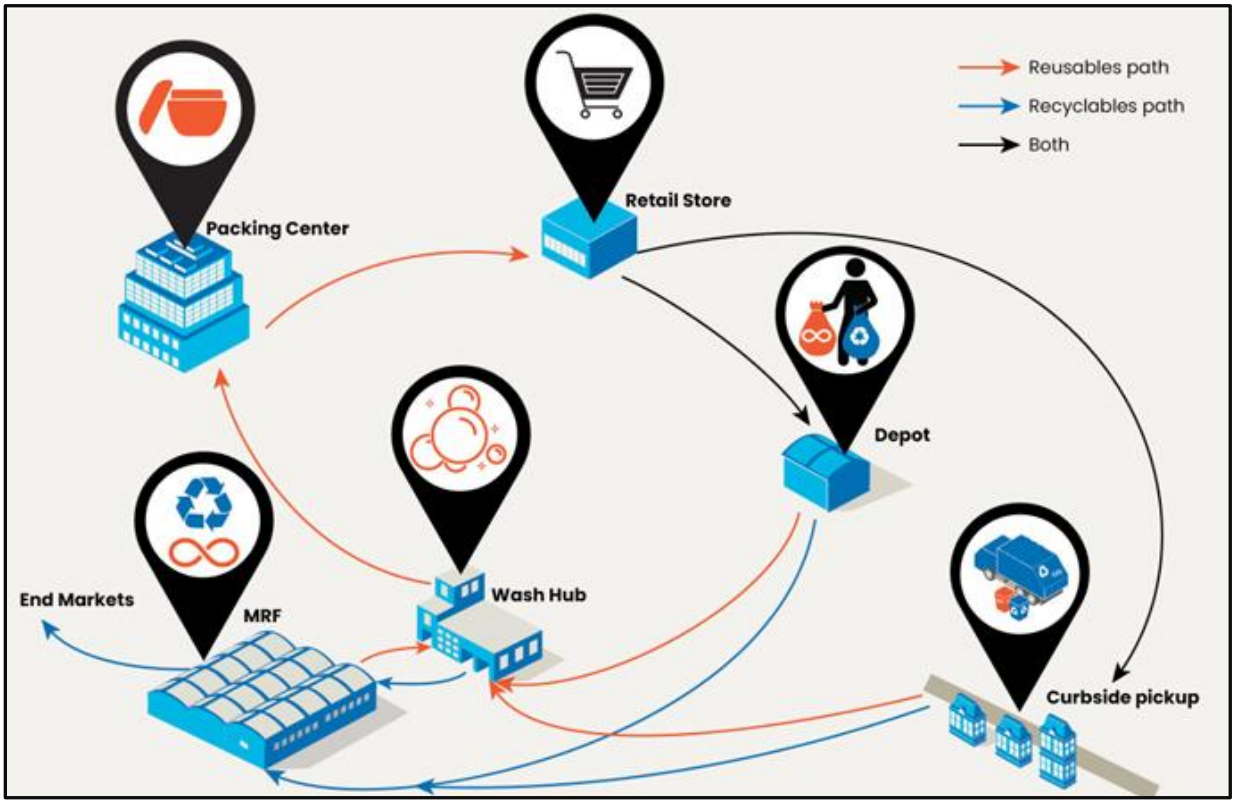

Figure 21. *Regional Shared Reuse Infrastructure (Source: Upstream)*

Approaches to Reuse

There are various approaches to implementing reusable food serviceware programs. Often these approaches vary depending on the maturity of similar programs in the area. If nobody else has implemented a program the approach will likely be different than if the implementation is taking place in a city where shared wash facilities and established programs exist. In the Product Stewardship Institute report titled *Supporting Reusable Food Serviceware in Your Community, A Guide for Municipalities*, they advocate that municipalities and other local government entities have an important role to play particularly through local policies and initiatives as highlighted in the section above. They suggest four overarching approaches as follows:

1. **Municipal-led:** This approach refers to initiatives that municipalities and local governments can conduct on their own to support reuse systems in their communities.
2. **Municipal-supported:** Through this approach, municipalities provide financial and technical support to others within their community who can establish reuse systems.
3. **Multi-stakeholder collaboration:** Through this statewide approach, municipalities and other stakeholders can support the development and implementation of EPR policies for food serviceware and packaging management.

4. **Reuse service provider:** these are steps that reuse companies and service providers can take to support reuse systems.

A comparable way to view this is as a continuum. In the *Reusable Take-Out Cups in Banff* report prepared by Habitus Consulting Collective they describe a continuum of approaches that range from "Uncoordinated" all the way to "System-Level" as shown in **Figure 22** and provide the following overview:

> In the uncoordinated approach, reusables emerge and scale according to the motivations of businesses and consumers and the availability of reuse options. There is no intentional effort or resource allocation to support the use of reusables within a targeted area or sector. In contrast, the system-level approach depends on coordination and collaboration to build a shared, inter-operable system for reusables that diverse businesses and consumers can join into.

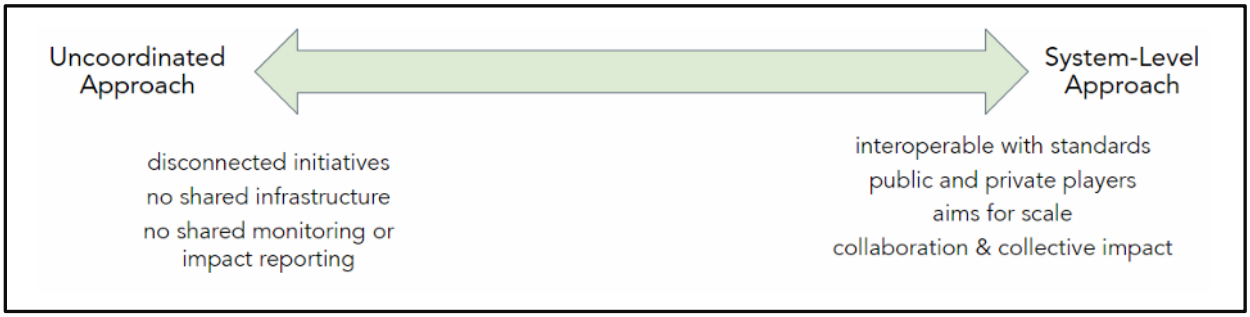

Figure 22. *Continuum of approaches to reuse (Source: Habitus Consulting)*

Reusable Food Serviceware Pilots

One way to introduce new programs is through the use of pilot programs. Currently there are multiple reusable container pilots taking place across Canada. One is a large scale first-of-its-kind reuse pilot program currently underway in the Ottawa Capital Region that is being led by the Circular Innovation Council (CIC). The Reuse Ottawa program is billed as the largest collaborative reuse program in Canada and includes a coalition of national grocery retailers including Metro, Sobeys, Farm Boy, and Walmart Canada. See Figure 23. The project website states that this "program will demonstrate scalable, convenient, and permanent solutions to reducing single use plastic packaging through innovative, collaborative reuse models." This pilot is using a 14-day lending model supported by Reusables' technology. Gate Gourmet cleans and sanitizes the containers, and Snelling Canada sorts and distributes the containers back to participating retailers and restaurants.

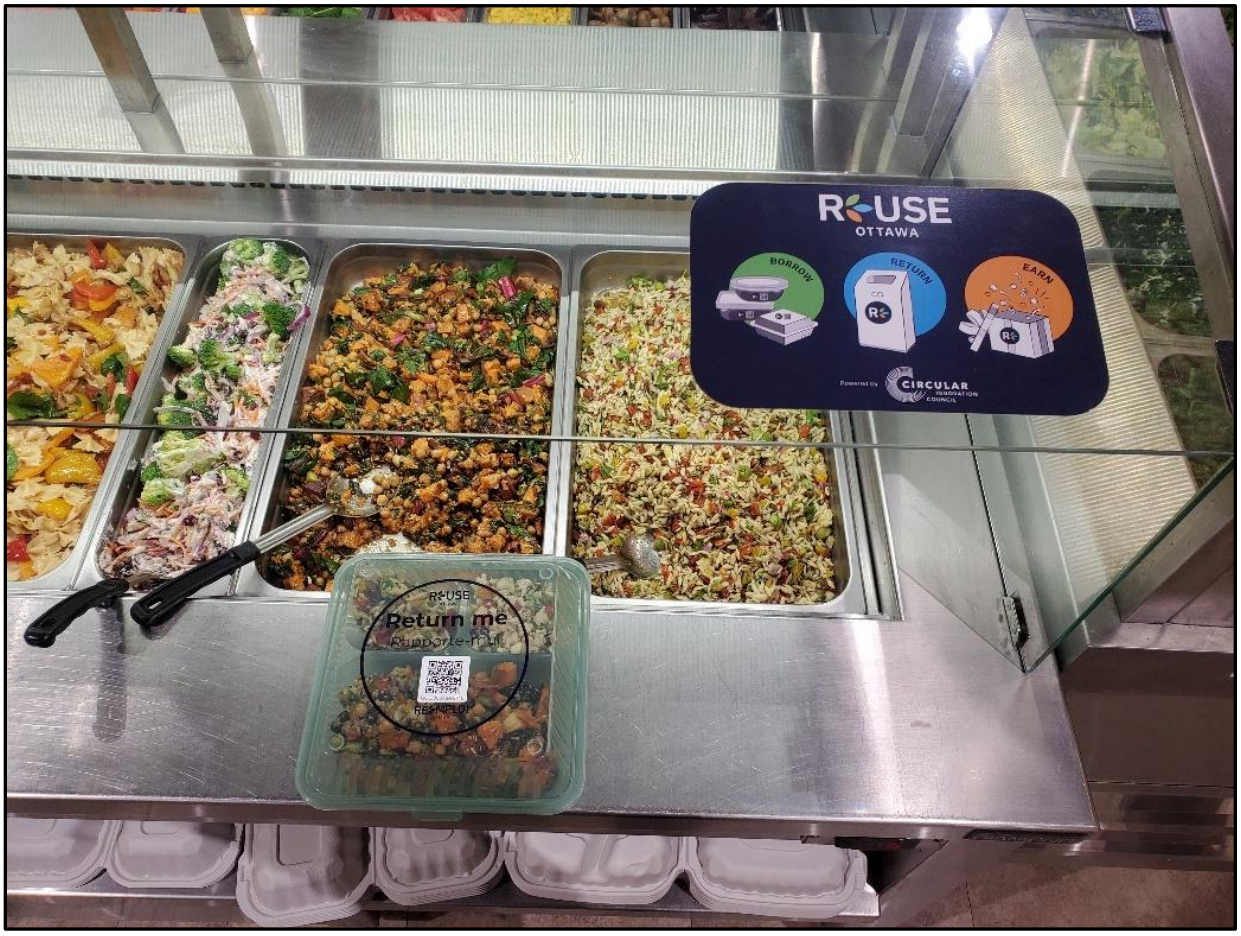

Figure 23. *Reuse Ottawa – Reusable container at self-serve salad bar*

Thoroughly educating store staff who are supporting pilot programs is very important. This will help to ensure pilot program participants are provided clear messaging and have a seamless experience. If participants are provided with incorrect information or do not have a positive experience using the program, their continued participation will suffer. Unfortunately, our one attempt to try the Reuse Ottawa pilot program was not a positive one. When asked about using the program, the Farm Boy staff member at the salad bar said there was a cost of $10 to use the reusable container when in fact there is no charge unless the container is not returned within 14 days. The staff member at the checkout counter made three unsuccessful attempts to scan the QR code and assign the container using the Reusables software application. Another staff member was called and successfully completed the transaction on their first attempt. Then when exiting the store, the automated Reusables return bin had a sign on it saying it was “Under Maintenance” as per Figure 24.

Figure 24. *Reuse Ottawa – Reusables bin under maintenance*

Another pilot project currently underway is Banff Borrows in the community of Banff, Alberta. See **Figure 25**. The pilot started with three sustainably minded coffee shops and has grown to more than thirteen. Patrons borrow a reusable stainless steel beverage cup at no charge using Muuse's technology platform and have up to 30 days to return the cup. If the cup is not returned, the customer is charged $20 to cover the replacement cost of the cup. Prior to the program more than 1,000 coffee cups were disposed of in public garbage bins each day which accounted for 18% by weight of all garbage collected. In November of 2024 the town of Banff issued a Request for Proposal (RFP) for the continuation and growth of the Banff Borrows Reuse Initiative. The RFP sets a number of deliverables for the initiative including the following:

- Borrows will increase by 50% by the end of 2025
- Return rate will increase to 95% by the end of 2025
- Add food containers in existing participating locations
- Reusable food ware will be offered in at least 5 closed-looped settings in Banff by the end of 2026

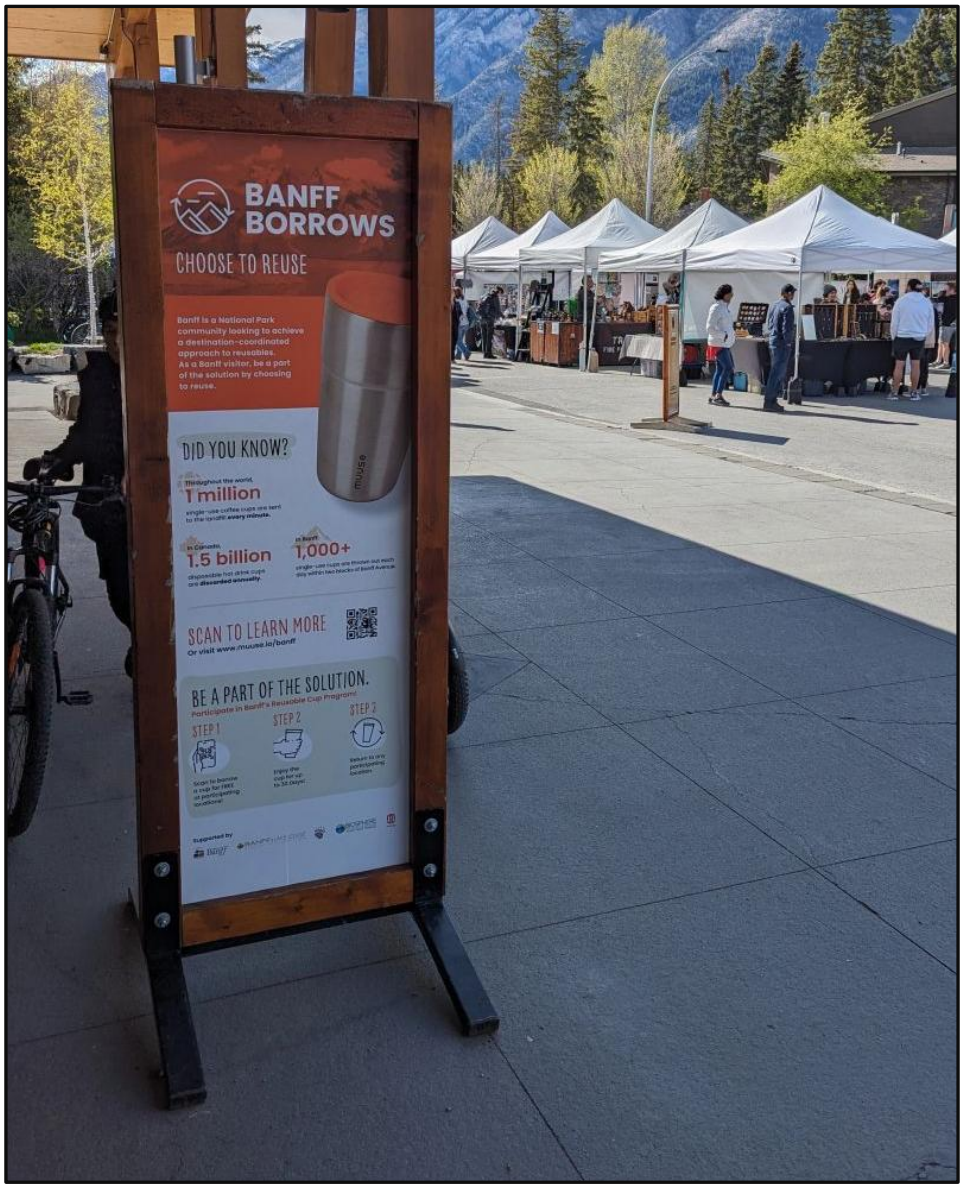

Figure 25. *Banff Borrows (Source: Muuse)*

In early 2025, the Regional Office of Environmental Coordination (Maritimes) of Fisheries and Oceans Canada and EnviroCulture Consulting, in collaboration with Divine Dishes who operate the staff cafeteria, conducted a reusable container pilot at the Bedford Institute of Oceanography. The pilot ran for six weeks with the goal of testing an assortment of reusable container types and soliciting employee feedback on a variety of topics related to the pilot project. After analyzing the options and to keep things simple, the decision was made to use a deposit-refund model with a $2 deposit collected at the time of sale on each of the reusable items, with the exception of cutlery. When patrons returned reusable items to the orange collection bins, cafeteria staff refunded the $2 deposits. The reusable food serviceware items purchased for the pilot were introduced at a kickoff event as shown in **Figure 26**.

Figure 26. *Containers used in BIO Trial*

The knives, forks, spoons, and plates were manufactured by Preserve, an American company that is B-Corp certified. These products are all made from 100% recycled polypropylene plastic and are both Bisphenol A (BPA) and Phthalate free as well as dishwasher safe and microwave durable. Preserve currently supplies other reusable programs including Sharewares and Muuse. The round 38 oz container and lid along with the hot beverage cup and lid were supplied by Cambium, a Canadian company, but were manufactured in Belgium by deSter, a company that has been recognized with a platinum sustainability rating by EcoVadis. As shown above in Figure 13, Cambium now offers made in Canada container solutions that were not available when ordering containers for the BIO pilot. The salad clamshells, screw top soup containers, and small snap lid containers were supplied by G.E.T, an American company, but manufactured in Taiwan. They offer one of the more extensive lines of reusable containers and are used by Bopaq, Muuse, and Reusables' customers, including the Reuse Ottawa pilot. The deSter and G.E.T products were all made from polypropylene and are labeled as dishwasher safe.

A basic payback comparison is shown in **Table 1** that simply divides the price paid for the multi-use items by the price paid for the single-use items to determine how many times each item would need to be reused to break even on cost. The payback on the reusable items varied quite significantly, with the cutlery paying back after just two uses and the small round 3 oz sauce container requiring 34 uses. The serving containers with lids that were used to serve main dishes required just over 7 reuses to pay back while the plates, soup containers, and coffee cups all required about 13 reuses. All of the payback times were well below the life expectancy of the containers.

Reusable container suppliers offer pricing discounts of 15 to 20% for bulk orders of 1,000 to 2,000 units and 40 to 50% on orders of 5,000 to 10,000 plus units. To demonstrate how this impacts the financial payback as programs grow and mature, a "Bulk Payback" column was added in **Table 1** that applied a 50% pricing discount. This lowered the payback for nearly all the items to under 10 uses and for many of the items to 7 or less uses. It is also important to note that the availability of quality reusable containers is quite limited, particularly ones that are made in Canada. While cheaper options were available, the project team wanted to ensure that quality products were purchased for the pilot. As more reusable container programs are implemented across North America, both the availability and pricing of containers should improve particularly with reusable service companies working directly with suppliers on container designs.

Table 1. Financial Payback Comparison - No Deposit

Single Use Items		**Reusable Items**			
Item	**Unit Price**	**Item**	**Unit Price**	**Payback**	**Bulk Payback ***
Fork	$0.05	Fork	$0.10	2.0	1.0
Knife	$0.05	Knife	$0.10	2.0	1.0
Spoon	$0.05	Spoon	$0.10	2.0	1.0
Plate	$0.10	Plate	$1.32	13.2	6.6
Clam shell - 15 oz	$0.14	Clam shell - 15 oz	$3.04	21.7	10.9
Round - 12 oz & press fit lid	$0.25	Round - 12 oz & screw top lid	$3.27	13.1	6.5
Round - 2 oz & press fit lid **	$0.03	Round - 3 oz & attached snap lid	$1.15	33.8	16.9
Round - 24 oz & press fit lid ***	$0.50	Round - 24 oz & press fid lid	$3.34	6.7	3.3
Round - 38 oz & press fit lid	$0.50	Round - 38 oz & press fit lid	$3.78	7.5	3.8
Cup - 12 oz hot beverage with sleeve & lid	$0.17	Cup - 12 oz hot beverage with lid	$2.24	13.1	6.5

* Applied a 50% discount to represent bulk purchase pricing
** This container was not available in a reusable 2 oz version, so it was replaced with a 3 oz version
*** The single use 24 oz container was replaced with a 38 oz reusable container

Another important consideration when calculating the financial payback for the reusable items for this pilot was the $2 deposit applied to all items with the exception of cutlery. With the deposit factored in, the highest payback was just over seven uses as shown in **Table 2**, with the remainder of the items breaking even in five or less uses and the plates and small sauce containers recouping their cost after just one use if not returned by the user to collect their two-dollar deposit.

Table 2. Reusable Items Financial Payback

Reusable Items				
Item	**Unit Price**	**Deposit**	**Difference**	**Payback**
Plate	$1.32	$2	$0.68	<1.0
Clam shell - 15 oz	$3.04	$2	-$1.04	7.4
Round - 12 oz & screw top lid	$3.27	$2	-$1.27	5.1
Round - 3 oz & attached snap lid	$1.15	$2	$0.85	<1.0
Round - 38 oz & press fit lid	$3.78	$2	-$1.78	3.6
Cup - 12 oz hot beverage with lid	$2.24	$2	-$0.24	1.7

Table 3. Reusable Items Return Rate

Item	**Units Purchased**	**Units Remaining**	**Units Not Yet Returned**	**Return Rate**
Fork	500	402	98	80.4
Knife	500	409	91	81.8
Spoon	500	365	135	73.0
Plate	200	167	33	83.5
Round - 12 oz, screw lid	144	92	52	63.9
Clam shell - 15 oz	144	113	31	78.5
Round - 3 oz, snap lid	144	91	53	63.2
Round - 38 oz, container	320	238	82	74.4
Round - 38 oz, cover	320	231	89	72.2
Cup - 12 oz, hot beverage	600	538	62	89.7
Lid - hot beverage	600	538	62	89.7
Pilot Program Average	**3,972**	**3,184**	**788**	**80.2**

Table 3 shows that for the pilot project an average “Return Rate” of just under 80% was achieved. This can be attributed to a variety of factors. One was the tight timeline for the project with just one week between when the pilot ended and when the container inventory was completed. There is an expectation that more containers will be returned in the coming weeks. Also, since the containers were new and of high quality some leakage was expected. After the

pilot's completion date, BIO employees were observed using various reusable containers at their workspaces, in particular the utensils. On the other hand, at the start of the pilot there were some cafeteria patrons who did not realize that the utensils were reusable and placed them in the garbage and recycling bins. A reported lack of support for the pilot program from a member of the cafeteria staff resulted in some challenges and likely fewer deposits collected and returned. More details regarding this are provided with the results of the employee survey.

Table 4 shows a basic environmental payback calculation that uses the weight of the containers; however, it must be noted that this is not an equivalency comparison as in nearly every case the material composition of the single use item was different than that of the multi-use item. Since Halifax's Solid Waste Resources sorting criteria classify most of the single-use items being used in BIO's cafeteria as garbage, this calculation represents the potential opportunity to divert these single-use items from landfill by switching to reusable alternatives. With the weight based break-even point for the spoons being less than one use and the average being well less than four uses, the opportunity to divert single-use food service packaging from landfill by implementing a reusable container program is quite significant.

Table 4. Reusable Items Environmental Payback

	End-of-Life		**Unit Weight**		
Item	**Single Use**	**Reusable**	**Single Use (g)**	**Reusable (g)**	**Break Even Point**
Fork	Landfill	Recycle	3.5	6.0	1.7
Knife	Landfill	Recycle	3.5	6.5	1.9
Spoon	Landfill	Recycle	4.5	4.0	0.9
Plate	Compost	Recycle	21.0	84.0	4.0
Clam Shell - 15 oz	Recycle	Recycle	16.0	86.0	5.4
Round - 12 oz, & lid	Landfill	Recycle	16.0	63.0	3.9
Round - 2 oz / 3 oz *	Recycle/Landfill	Recycle	2.5	17.5	7.0
Round - 24 oz / 38 oz, & lid	Landfill	Recycle	24.0	63.0	2.6
Cup - 12 oz, hot beverage **	Landfill/Recycle	Recycle	18.5	45.5	2.5
Average			**109.5**	**375.5**	**3.4**

* Container is recyclable, lid is garbage

** Cup and lid are garbage, sleeve to protect user from heat is recyclable in the paper stream

Other things to consider when examining the environmental impacts of reusable containers are washing and transportation. In the case of the BIO pilot, all reusable items were washed and stored on site so there was no requirement to transport them to a washing facility or back. The cafeteria kitchen has a very energy and water efficient dishwasher to minimize the energy and water needed to wash/sanitize the reusable items. In addition, the BIO facility is equipped with a flat panel solar thermal water heating system that is oversized for the hot water needs of the kitchen. Therefore, the majority of the hot water heating needs throughout the year are supplied using renewable energy from the sun.

BIO is made up of nine separate buildings and a Government of Canada co-working space. As part of the pilot project an online survey was conducted with BIO staff, and other cafeteria users. Seventy-three surveys were completed from a sample size of approximately eight hundred staff. Support for the project, while positive overall, did vary based on which building a particular employee worked in as some of the offices are up to a ten-minute walk from the cafeteria. While **Figure 27** shows 59% of staff welcomed the program and 8% opposed it, the comments provided in the "Other" category which totaled 27% showed an approximate 50/50 split between those for and those against. This puts the overall result at close to 75% in favour.

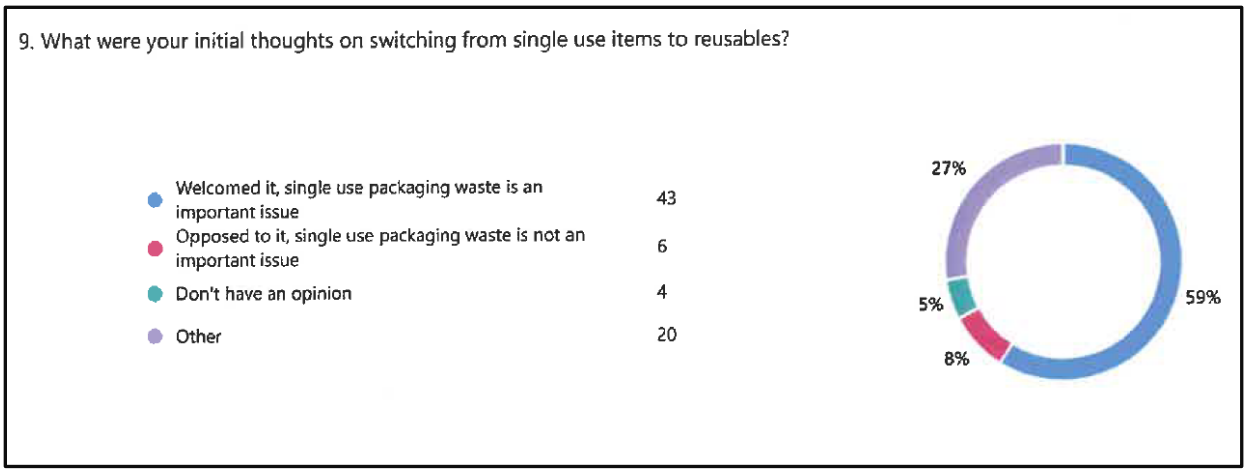

Figure 27. *Survey question gauging support for reusables program*

While 37% of respondents indicated that the $2 deposit made them less likely to purchase specific items in reusable packaging, their comments showed that they generally still support the transition away from single-use packaging. In a number of cases these staff worked in buildings that were farther away from the cafeteria, and implied that returning the containers to collect their deposit was inconvenient. This was a general observation for the program as a whole. Since the cafeteria closes at 3 PM each day there was no convenient option for those who wanted to return their containers and collect their deposits as they left the office at the end of the day.

Overall, the majority of the containers purchased for the program performed well and received high satisfaction ratings from staff. In particular the hot beverage cups, plates, and utensils received the highest approval ratings of over 85 to 90% and the small container with attached snap-on lid for dressing and condiments along with the salad clam shells the lowest approval ratings of about 75%. Interestingly the survey responses showed 3 to 5 staff who were either "Somewhat dissatisfied" or "Very dissatisfied" with each of product types; however, these results were primarily provided by the same staff who indicated they were opposed to a reusable container program.

Cafeteria staff said they were pleased with the overall performance of the containers and found them both easy to clean and use. The hot beverage cups could be used without the addition of a heat sleeve and the covers on all containers stayed firmly in place. The one item they noted was that the hinged lid on the salad clam shells detached after just a few uses on 3 or 4 of those items so the longer-term durability of this item is questionable. With the pilot project only running for six weeks, it is not possible to draw substantive conclusions on the long-term durability of each of the items; however, all of them appeared to perform well enough to pay back both financially and environmentally when compared to their single-use counterparts.

The survey responses and general observations showed that the pilot program did raise awareness about reducing waste and resulted in positive behavioural changes. As a result of the $2 deposit more staff brought their own personal mugs when purchasing coffee and a number of staff opted to eat their meals in the cafeteria using ceramic plates and bowls and stainless-steel cutlery. Some staff also indicated a desire to bring their own reusable containers to get their meals to go. The program also provided an opportunity to address many common waste sorting challenges as a number of staff mistakenly thought that items such as single-use coffee cups and cutlery marked as "compostable" were either recyclable or compostable when in fact they belong in the garbage stream for Halifax's source separation programs.

Ideally, the learnings from the pilot project will be used to implement a permanent reusable container program at BIO. This would align with the Federal Government's Greening Government Initiative. However, full implementation might not be possible until the renewal of the contract with the food service provider since the current contract doesn't provide specific direction on the use of single-use food serviceware other than that the service provider is "encouraged to make sustainable choices, where possible."

Conclusion

Single-use packaging results in a variety of negative environmental, social, and economic costs. From resource use and carbon emissions to landfill waste and contaminated recycling and organics streams, single-use food service packaging is responsible for a wide variety of external challenges and costs. Attempts to manufacture a variety of "less bad" single-use packaging have

not been successful in solving the root cause of the problems and have often resulted in more confusion and cost for food service patrons, business owners, and municipalities. Litter continues to be an issue along streets and in waterways and it is time for a shift away from this throw-away culture.

Reusable takeaway food service packaging, while in its infancy, offers a viable solution. The introduction of reusable packaging and programs across Canda and in the United States is starting to grow. A number of pioneering companies are providing innovative reusable container solutions for different users whether they be closed systems for entertainment and sporting events or deposit/refund and borrowing systems for cafes, restaurants, and university campuses. Pilot programs and expanded systems continue to be rolled out along with new purpose-built reusable containers and collection bins. The technology and IT systems to track containers and measure and report impacts also continue to advance. With the establishment of Canada's National Wash Network vital infrastructure needed to support the collection, washing, and redistribution of reusable containers is also gradually being developed.

However, more still needs to be done to support the transition to reusable takeaway food service packaging. Provincial and municipal regulations should be put in place to limit or eliminate the use of single-use food serviceware, particularly for in-house dining as jurisdictions such as Victoria and Banff have done. Regulation should also permit patrons of cafes and food service establishments to bring their own reusable containers. In addition, Provincial EPR programs should include mandates for reusable packing including incentives, explicit targets, and funding for infrastructure.

When planning to start a reusables program there are a number of factors to consider that will aid in design and contribute to a successful implementation. These include the following:

- Fashion vs function – is a uniquely designed or branded item necessary or would a standard off-the-shelf item that can be shared amongst a group of like-minded businesses be better
- Low-end vs high-end – will a basic reusable item to contain and/or serve food or beverages 30 to 50 times suffice or is a high-end stainless-steel item which is good for 1,000 reuses more appropriate
- Closed vs open – is the implementation happening in a "closed" controlled environment versus in an "open" location where the reusable items will be taken away
- On-site vs off-site management – will the containers be washed/sanitized on-site or will they be taken off-site to have a third party for washing and redistribution
- New vs mature – will this reusable program be a first of its kind in the area or part of a larger established network already operating in the area

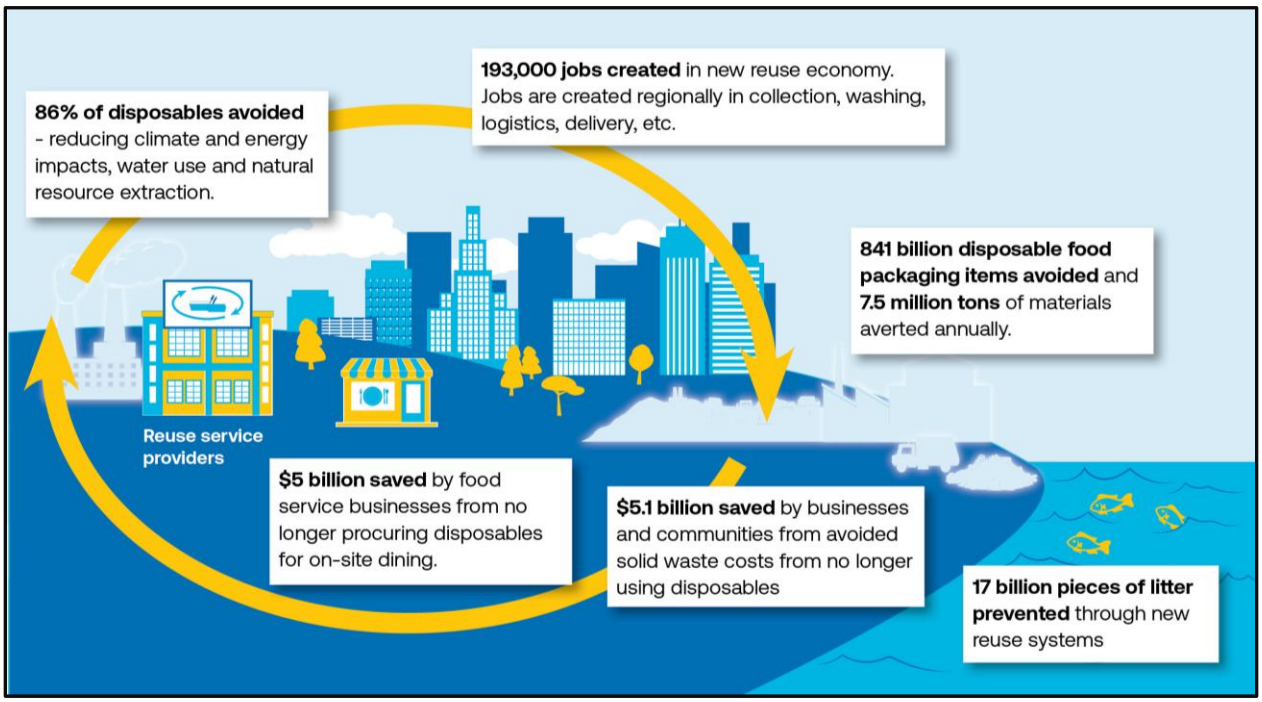

Figure 28. *Tomorrow's new reuse economy for food service (Source: Upstream)*

If Nova Scotia is looking to move the bar on the adoption of reusables in the province, a "Municipal-led" or "System-Level Approach" is needed. This will help speed up implementation by providing a supportive environment for the growth of reusables. If successfully implemented, a large-scale shift from single-use to multi-use/reusable food serviceware packaging will not only increase the diversion of valuable resources from landfill but will also provide a host of other benefits. **Figure 28** from Upstream depicts, "Tomorrow's new reuse economy for food service" in the US which includes new local jobs, economic benefits for food service providers and municipalities, and litter prevention.

Recommendations

Based on the research findings, the following recommendations can be made:

1. The province takes the opportunity to lead by example and implement a reusable food serviceware program for the Nova Scotia School Lunch Program. This program can become the anchor tenant for a Nova Scotia venue for the National Wash Network and support the establishment of large scale standardized reusable infrastructure for the province.

2. Based on the positive support from the majority of staff a permanent reusable food serviceware program should be implemented at BIO. Feedback from staff and observations from the implementation team would be taken into consideration to streamline the returns

process and make it more accessible ideally by using the services of one of the reusable container service providers.

3. Divert NS fund a research project to identify the location of and additional wash capacity available in existing commercial dishwashing operations in Nova Scotia. This may help attract reusable container service providers to the province by minimizing the needed investment i.e. not having to build their own commercial wash facility.

4. Municipalities and the province can lead by example and implement reusable food serviceware programs at all of their buildings and venues. This will help to build the demand for service providers, provide opportunities to bulk order reusable containers to keep costs down, and leverage the infrastructure created for Recommendation 1.

5. Divert NS hold a summit on Reusables for representatives from municipalities, the food service industry, and businesses/institutions that supply food services such as universities, hospitals, seniors' homes, etc. In addition, related businesses such as food serviceware suppliers and event rental businesses, the Directions Council, food delivery companies, special event coordinators, haulers, and dishwashing service providers should also be included.

6. Municipalities, with assistance from Divert NS, can implement an updated education program for food service establishments with a focus on reducing single-use food serviceware. This education can promote using reusable food serviceware for in-house dining, encouragement/rewards for customers who bring their own take-away containers and mugs, as well as support implementing reusable food serviceware to replace all single-use food serviceware. At the same time there can be a coordinated increase in enforcement for improperly sorted materials in the multi-stream bins public bins at these establishments.

7. In concert with recommendation 4, Divert NS would implement a program to help businesses transition from single use to reusable food serviceware packaging. Both the Nova Scotia Adopt-A-Highway and Great Nova Scotia Pick-Me-Up programs are funded by Divert NS and have identified food serviceware packaging as problematic. A program to support the transition to reusables would help to manage this problem at the source rather than continuing to deal with it at end-of-life.

8. Divert NS should reintroduce their funding program for municipalities to support special events in their various regions. However, rather than assisting events with the cost of sorting bins as was done in the past, the funding should be directed towards the implementation of a reusable food serviceware program at the events.

9. Provincial EPR legislation needs to be updated to include mandates to promote reusable packaging including incentives, explicit targets, and funding for infrastructure.

10. Divert NS, as part of their EPR oversight role, would work with municipalities and industry to improve data collection for single-use food serviceware to help inform decision making.

11. It is recommended that the province of Nova Scotia and municipalities throughout the province enact legislation to make the use of real food serviceware mandatory for in-restaurant dining. With legislation that also permits patrons of cafes and food service establishments to bring their own reusable mugs and containers and ensure food service establishments have the processes in place to support this.

Acknowledgements

The research completed in this report was made possible by a Divert NS Research & Development Grant and funding provided by the Regional Office of Environmental Coordination (Maritimes) of Fisheries and Oceans Canada Department of Fisheries and Oceans. In particular I would like to acknowledge the support of Brian Elson from DFO, Hunar Arora, Ally Chant, and Kirk Symmonds from Halifax Solid Waste Resources, and Sasha Barnard from Divert NS. In addition, I would like to thank the staff of Halifax Solid Waste Resources, Valley Waste Resource Management, Acadia University, and Divine Dishes. Thank you as well to all the members and supporters of the reuse community including those from the many reusable container businesses, standards organizations, and environmental NGOs that I talked to across Canada and the US. This project would not have been possible without all of your support.

Additional Resources

Analyse du Cycle de Vie de Tasses Réutilisables et de Goblets à Café à Usage Unique

Blueprint for Reuse Systems in Closed Environments

Debunking Durability: How Durable Does Reusable Packaging Need to Be?

Embracing Reuse in U.S. Packaging EPR Programs

Insights for Industry Leaders on Building Successful Reuse and Return Systems

Play to Zero Reuse Playbook

Provincial Policy on the Use of Reusable Food Containers in Food Premises in British Columbia

Regulation – Banff – Single-Use Item Reduction Bylaw

Regulation – British Columbia – Single-Use and Plastic Waste Prevention Regulation

Regulation – Edmonton – Single-Use Item Reduction Bylaw

Regulation – Toronto – Single-Use and Takeaway Items Bylaw

Regulation – Victoria – Single-Use Items Reduction Bylaw

Reusability by Design

Reusable Take-Out Cups in Banff

Reuse and Refill of Plastic Packaging

Reuse Wins

Single-Use Items Reduction Strategy | Banff, AB - Official Website

Study on Reuse and Refill of Plastic Packaging – National Ecosystem Scan

Supporting Reusable Food Serviceware in Your Community – A Guide for Municipalities

Upstream Solutions

Reusable Container and Service Suppliers

Bopaq

Cano

Carrousel

Cambium

Cube

Cupko

EcoCup

Friendlier

G.E.T.

La vague

Muuse

Omnia Packaging

Preserve

r.World Reusables

Retournzy

Returnr

Reusables

Sharewares

Suppli