Ce projet a été réalisé en partenariat avec
This project was undertaken in partnership with

Environnement et Changement climatique Canada
Environment and Climate Change Canada

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NACTR THE NATIONAL ASSOCIATION FOR CHARITABLE TEXTILE RECYCLING
THE SALVATION ARMY THRIFT STORE

PHASE 1

May 30, 2025

Textile Transformation Nova Scotia

Landscape Scan

Building a Circular Textile Economy in Nova Scotia

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This work takes place in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People. These lands are covered by the Peace and Friendship Treaties, which continue to guide relationships in these regions. We acknowledge these treaties as ongoing responsibilities, not historical gestures.

The values that inform this report, including care, continuity, and circular use of resources, reflect long-standing Mi'kmaw knowledge systems that understand land as relational and regenerative.

We also honour the African Nova Scotian communities who have lived on this land for over 400 years. Their histories and contributions are central to the fabric of Nova Scotia and to the work of building systems that are just and enduring.

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EnsembleCo Consulting Services is a research, strategy, and project management consultancy specializing in circular economy initiatives, sustainable resource management, and green innovation. With expertise spanning waste diversion, textile recycling, stakeholder engagement, and program development, EnsembleCo partners with government agencies, nonprofits, and private sector leaders to design actionable, impact-driven solutions that advance environmental and economic resilience. Our mission is to help organizations turn sustainability challenges into opportunities for leadership, innovation, and systemic change.

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Acknowledgements:

We gratefully acknowledge Divert NS and its Research & Development Program for supporting the completion of this work. We also thank Environment and Climate Change Canada for its financial contributions through the Zero Plastic Waste Initiative. Special thanks to Tonny Colyn for her time, expertise, and commitment to the success of this project, to The Salvation Army National Recycling Operations for their in-kind guidance and support, and to Dr. John Fiset, Associate Professor at Saint Mary's University, for his invaluable research mentorship. We are also deeply appreciative of the support and insight provided by Sasha Barnard at Divert NS. Many thanks to Jovana Randjelovic for her expertise and design eye, and for facilitating conversations with international players in textile recycling. Finally, we extend our thanks to Kelly Drennan and Fashion Takes Action, whose foundational work laid the groundwork for this project.

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List of Acronyms

AC	Accelerating Circularity
C&D	Construction and Demolition
CCTC	Canadian Circular Textiles Consortium
ECCC	Environment and Climate Change Canada
EPR	Extended Producer Responsibility
ESG	Environmental, Social, Governance
EU	European Union
FTA	Fashion Takes Action
ICI	Industrial, Commercial, and Institutional
NIR	Near Infrared
NS	Nova Scotia
PPP	Printed Paper and Packaging
PRO	Producer Responsibility Organization
RES	Residential
SMART	Secondary Materials and Recycled Textiles
SME	Subject Matter Expert
TTNS	Textile Transformation Nova Scotia
US	United States

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Executive Summary & Key Recommendations

Textile waste in Nova Scotia is rising sharply, driven by population growth, increased consumption, and the dominance of fast fashion. Between 2017 and 2023, the volume of residential and industrial textile waste disposed of in Nova Scotia landfills increased by 111%, reaching 58,561 tonnes annually (Divert NS, 2023). Left unaddressed, this trend will undermine provincial waste diversion goals, burden landfill capacity, and contribute to greenhouse gas emissions and environmental degradation.

This landscape scan examines the current state of textile waste management in Nova Scotia and identifies localized opportunities for reuse, recycling, and policy innovation. Building on national findings from Fashion Takes Action (2021), this study integrates stakeholder insights, waste audit data, and lessons from leading international programs to provide targeted recommendations for advancing a circular textile economy in the province.

Key findings include:

- **Infrastructure Gaps:** Nova Scotia lacks the necessary sorting, grading, and recycling facilities to manage textiles at scale, leaving the province heavily dependent on export markets that are increasingly unstable.
- **Multi-Step Processing Needs:** Textile circularity requires a sequential system: first, sorting (manual, semi-automated, or fully automated); second, recycling (mechanical, chemical, or emerging biothermal technologies); and third, developing feedstock formats (e.g., fibre, pellets, or rags) suitable for easy adoption by local industries.
- **Logistics Challenges:** Efficient transportation systems will be critical to move textiles between collection, sorting, reuse, recycling, and end-users while minimizing fossil fuel use and operational costs.
- **Market Challenges:** The recycling sector faces economic hurdles, including competition with low-cost virgin fibres and limited domestic demand for recycled materials.
- **Policy Opportunities:** Extended Producer Responsibility (EPR) programs, as successfully implemented in France, and being adopted in California, and parts of the European Union (EU), offer a scalable model for shifting the cost and responsibility of textile waste management onto producers.
- **Stakeholder Collaboration:** Multi-stakeholder initiatives (MSIs), such as the Canadian Circular Textiles Consortium (CCTC), show promise in uniting brands, municipalities, and nonprofit organizations to drive coordinated action.
- **Education and Public Awareness:** Increasing public understanding of what can be reused and where to donate is essential to maximize the recovery of rewearable textiles and reduce contamination in the donation stream.

Recommendations focus on short, medium, and long term strategies to address textile waste, including establishing a local Producer Responsibility Organization (PRO), investing in collection and sorting infrastructure, piloting mechanical recycling technologies, and preparing for future federal regulatory developments such as the expansion of the Federal Plastics Registry to cover textiles (Environment and Climate Change Canada [ECCC], n.d.).

Nova Scotia has the opportunity to lead in building a resilient, localized, and circular textile economy. With targeted investments in infrastructure, smart logistics planning, regulatory leadership, and cross-sector collaboration, the province can significantly reduce textile waste, create green jobs, and contribute meaningfully to its climate and environmental goals.

Pathway to a Circular Textile Economy in Nova Scotia

From Collection to Circularity: Building Systems for Collecting, Sorting, Recycling, and End-Use Markets

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1. Introduction

Textile waste is becoming an increasingly critical issue in Nova Scotia (NS), driven by both population growth and rising consumption. According to The Nova Scotia Department of Finance, the province's population has seen a significant increase, reaching 1,079,676 residents as of December 31, 2024 (2024). This represents a growth of 12.9%, up from 956,074 residents on December 31, 2017, which has put added pressure on waste management systems across the region (Nova Scotia Department of Finance, 2024). This kind of population increase is significant considering **Canadian households spend on average $2,303 on clothing and accessories each year** (Statistics Canada, 2023). The impact of this level of consumption is further exacerbated by the fact that the average garment is worn just seven to ten times before it is discarded (Veurink, 2025). Moreover, an estimated **92 million tonnes of waste** are generated globally each year by the fast fashion industry, which is also responsible for **1.2 billion tons of greenhouse gas emissions** annually (Rai, 2025).

Divert NS, a non-profit organization dedicated to promoting recycling and waste diversion in Nova Scotia, plays a crucial role in addressing the province's waste challenges. Established in 1996 under the Nova Scotia Solid Waste-Resource Management Regulations, Divert NS' mission is to to improve the environment, economy, and quality of life of Nova Scotians by championing initiatives that promote reducing, reusing, recycling, and recovering resources to minimize waste. To fulfil their mission, Divert NS conducts province-wide landfill audits (Divert NS, 2023). These audits examine a sample of waste sent to landfills and categorize it into distinct material groups, providing insight into the composition of landfill waste in Nova Scotia. The categories used in these audits include Organic, Textile, Plastic, Fibre, Special Care Waste, Construction and Demolition (C&D), and Other.

Recent audit findings reveal alarming trends in textile waste. It is important to note that waste is categorized into two streams, Residential (RES) and Industrial, Commercial, and Institutional (ICI). RES includes waste collected from residential areas including single family homes and townhouses (e.g., socks and undergarments, shoes). ICI refers to waste collected from businesses and institutions like hospitals and hotels (e.g., bed linens, uniforms). In 2017, textiles accounted for 8.6% of the total RES and ICI waste in Nova Scotia landfills (Divert NS, 2023). By 2023, this figure had surged to 18.1%, representing a more than 100% increase in just six years (Divert NS, 2023). These numbers are even more concerning when analyzed in terms of absolute volumes. In 2017, the volume of RES and ICI textiles taking up space in Nova Scotia landfills is reported to be 24,364 tonnes, compared with 58,561 tonnes in 2023 (Divert NS, 2023), an increase of 111%. While the methodology of landfill audits is scrutinized by some as being vulnerable to sampling error, the volume of the change is large enough to dispel this thought.

Exacerbating the problem is the fact that textiles composed of synthetic fibres, such as polyester, acrylic, and nylon, make up approximately 67% of all textiles produced today (Statista, 2023) and these items will persist indefinitely in landfills. While natural fibres such as cotton and linen, and man-made cellulosic fibres, like viscose, will decompose in landfills, these items release methane, a potent greenhouse gas, as they break down, contributing to emission counts and climate change (Fashion Takes Action, 2021). Consequently, it is crucial to prevent both synthetic and natural textiles from ending up in landfills. Additionally, while much attention is paid to what percentage of secondhand clothing exports are waste, with some sources citing anywhere from 2%, 5%, or 40%, the reality is that nearly 100% of exported garments will eventually become waste somewhere, even if delayed through reuse (Vogue Business, 2024).

There are other motivations beyond slow decomposition and methane emissions for keeping textiles out of landfills. Many textiles are treated with dyes and chemicals (e.g., water repellents) that can leach into soil and water, potentially contaminating nearby ecosystems (Islam et al., 2025). Synthetic textiles shed microplastics as they degrade, which remain in the environment and infiltrate water systems, harming marine life and entering the food chain. Since textiles take up significant space in landfills, they contribute to overflow and put strain on waste management systems and accelerate the need to find additional landfill locations. Finally, many textiles that are

discarded could be reused, repurposed, or recycled, reducing the need for virgin materials and decreasing environmental impact (NACTR, 2023). Disposing of them in landfills represents a wasted opportunity for circular economy initiatives. Moreover, the continued reliance on secondhand export markets often masks the reality that much of this material ultimately ends up in landfills abroad, shifting environmental burdens onto other regions and perpetuating the illusion that exporting clothing is a sustainable solution (Vogue Business, 2024).

The growing issue of textile waste presents significant obstacles for Nova Scotia in reaching its broader objectives for waste reduction and environmental sustainability. The Environmental Goals and Climate Change Reduction Act, enacted on October 27, 2021, establishes 28 ambitious targets, including Canada's most stringent 2030 greenhouse gas emission reduction goal. Nova Scotia aims to cut emissions by at least 53% compared to 2005 levels by 2030 and achieve net-zero emissions by 2050 (Nova Scotia Department of Environment and Climate Change, 2021). Also among these objectives is the target of reducing solid waste disposal by 25% from 400 kg/person annually to 300 kg/person annually by 2030 (Nova Scotia Department of Environment and Climate Change, 2023c). Given the potential for textiles to contribute significantly to these goals (e.g., textiles are heavy and will place a burden on solid waste weight goals), it becomes critical to explore opportunities for textile recycling, assess the potential for industry involvement, and engage stakeholders in developing effective solutions. With this in mind, the present study aims to explore opportunities to decrease textile waste in Nova Scotia by examining existing diversion programs, identifying gaps in infrastructure and policy, and exploring localized solutions for end-of-life textile waste. As textile exporters themselves have noted, the sector is at risk of "imminent collapse," with few real recycling solutions currently in place (Vogue Business, 2024), reinforcing the urgency for Nova Scotia to develop domestic strategies. This work builds on the findings of an in-depth analysis of the state of textile recycling across Canada that was conducted by Fashion Takes Action (FTA) (2021), as well as textile stewardship work that is being done globally.

In *A Feasibility Study of Textile Recycling in Canada* (2021), FTA emphasized the urgent need for more efficient textile diversion and recycling programs and highlighted several key challenges and opportunities within the Canadian textile recycling landscape. First, the report found that there are significant textile waste volumes in landfills across Canada, with close to 500,000 tonnes of RES textiles (clothing, home textiles, footwear, accessories, soft toys, and others) being discarded annually. Furthermore, given the wide usage of synthetic fibres (e.g., polyester, elastane, spandex) in apparel, textiles account for seven percent of all plastic waste in Canadian landfills (FTA, 2021), a number which is expected to grow. Next, FTA found that there is limited recycling infrastructure in Canada. Current systems focus largely on donation-based diversion, but there are few large-scale operations equipped to sort, prepare, and process textiles into recycled fibres or other products. Third, the study highlighted several barriers to scaling textile recycling, including high costs associated with collection and sorting, contamination of textiles with non-recyclable materials, and the lack of markets for recycled textile products due to policy around using new materials only, among other reasons. Despite the challenges, FTA identified opportunities for innovation in this sector. Key areas include advancements in fibre-sorting technology, the expansion of circular fashion initiatives, and government-led policy interventions to incentivize textile recycling and support a circular textile economy. Finally, FTA emphasized the importance of collaboration between key stakeholders including government bodies, the private sector, non-profits, and consumers, to drive meaningful change in textile sustainability.

With this in mind, the present report, also known as Phase 1 of the Textile Transformation Nova Scotia (TTNS) project, builds on the work done by FTA by addressing the specific needs and opportunities identified for textile reuse and recycling within a localized context. While FTA's study provided a national overview, this project focuses on a landscape scan tailored to Nova Scotia's unique challenges and opportunities.

The project aims to identify strategies for reducing textile waste in the short, medium, and long term through education, coordination, policy reform, and innovation, with the ultimate goal of advancing a circular economy and supporting Nova Scotia's environmental and economic sustainability objectives.

1.1 Objectives

The main goals of this project are to investigate and establish scalable textile diversion and recycling solutions that can be seamlessly integrated into Nova Scotia's current waste management systems over the short, medium, and long terms. In doing this, the aim is to minimize the amount of textiles sent to landfills, promote resource recovery, generate employment opportunities in waste management and the circular economy, and support the province's broader waste reduction objectives. This is achieved through a landscape assessment, which includes an analysis of Nova Scotia's current textile waste landscape, market trends, technological advancements, regulatory frameworks, insights from other regions, and final recommendations. The recommendations feed into Phase II of the project, which aims to build on the highest-priority suggestions by implementing educational initiatives, engaging in further research, and designing pilot projects. In Phase II, the objective is to educate, spread awareness, and design and test viable textile diversion and recycling methods in Nova Scotia while considering existing infrastructure and assessing resource capacity. This process also involves stakeholder and community engagement, assessing environmental and economic impacts, and ensuring alignment with Divert NS and provincial waste reduction goals.

In line with FTA's (2021) recommendation for collaborative efforts, TTNS engages a diverse range of stakeholders, including government agencies, recycling and waste management organizations, non-retail nonprofit organizations, textile manufacturers and brands, research and advocacy groups, second-hand retailers, sorters, graders, and exporters, and independent subject matter experts (SME). This process leverages the insights and resources of multiple sectors to develop a coordinated approach to textile recycling. Acknowledging the findings of FTA regarding the necessity of government backing, this paper also examines policy suggestions aimed at bolstering textile diversion, reuse, and recycling within the province. Additionally, the paper offers insights into international textile programs and their potential adaptation to align with Nova Scotia's specific context.

Key deliverables include:

- Comprehensive insights into the current landscape of textile waste management in Nova Scotia.
- Strategic recommendations for advancing textile diversion, reuse, and recycling efforts over the short, medium, and long term.
- Identification and development of collaboration opportunities among local stakeholders to accelerate textile circularity initiatives across the region.
- By combining stakeholder insights, waste stream data, and analysis of textile programs underway across Canada and internationally, this landscape scan establishes a strong foundation for advancing textile recycling efforts in Nova Scotia. It highlights the province's opportunity to lead in waste diversion, innovation, and circular economy development at a critical time when global textile systems are under increasing strain. By drawing from both local expertise and international best practices, this study identifies practical, scalable pathways for action that align with Nova Scotia's environmental and economic sustainability goals.

This paper is organized as follows: it first provides an overview of Nova Scotia's current textile waste landscape and the limitations of existing systems. It then examines policy frameworks, international case studies, and technological advancements that could be adapted to the province's unique context. Following that, the paper identifies opportunities for innovation, collaboration, and infrastructure development, before concluding with detailed recommendations for short, medium, and long term action. Together, these sections build a pathway for transforming Nova Scotia's approach to textile waste, turning today's challenges into tomorrow's circular economy successes.

2. Background

2.1 Assessment of Current Textile Waste Landscape in Nova Scotia

In Nova Scotia, textile waste is generated from two primary sources: RES and ICI sectors. Textile waste from RES sources originates from private households and multi-family dwellings, while ICI waste comes from industries such as hotels, hospitals, and businesses including thrift stores. During waste audits, auditors differentiate between RES and ICI textile waste based on the origin of the waste load rather than its contents (Divert NS, 2023). RES waste is typically collected through municipal curbside programs and brought to waste management facilities separately from ICI waste, which is hauled independently by private contractors. Furthermore, visual markers such as the types and quantities of items (e.g., large volumes of uniform linens from hotels versus mixed household items) can provide additional clues (Divert NS, 2023).

Nova Scotia is unique in Canada for regularly including textiles as a material category in its waste audits, which provides valuable data on textile disposal trends (FTA, 2021). In most other provinces, textile waste is either not separately categorized in audits or is only studied intermittently through special research initiatives rather than included in standard municipal audits (Colyn, Kelleher, & St. Jacques, 2019). The consistent monitoring of textile waste in Nova Scotia allows for a more accurate understanding of volumes, diversion potential, and trends over time, which supports the development of targeted waste reduction programs and policies (Divert NS, 2023).

Nova Scotia audits the province's seven solid waste landfills every few years to assess material composition. The textile category, as defined by Divert NS in the 2023 audit, includes five main subcategories: clothing (e.g., shirts, pants, dresses, socks), household textiles (e.g., tablecloths, curtains, bedding, towels, blankets, pillows), footwear (e.g., sneakers, dress shoes, slippers), accessories (e.g., handbags, stuffed animals, bags, belts, wallets), and waste textiles (e.g., contaminated rags, haz-mat suits, floor mats, area rugs, tents) (Divert NS, 2023). These subcategories are found across both RES and ICI waste streams. The primary distinction is based on the source of disposal: residential textile waste largely consists of varied, individual consumer goods from private households, whereas ICI textile waste often involves larger quantities of similar items discarded by businesses, institutions, and industries such as hospitality, healthcare, and retail.

The 2017 audit reported 24,364 tonnes of textile waste across both RES and ICI sources. By 2023, this figure had grown to 58,561 tonnes, indicating a significant increase in textile waste (Divert NS, 2023). RES textile waste alone rose by 53% between 2017 and 2023, from 15,192 tonnes to 32,696 tonnes, while ICI textile waste saw an even larger increase of 204.0%, from 9,172 tonnes to 25,864 tonnes in the same period. Population growth partly explains this trend but does not fully account for the scale of increase. Nova Scotia's population grew from approximately 956,074 in 2017 to approximately 1,064,297 in 2023 (Nova Scotia Department of Finance, 2023). When adjusting for population, per capita textile waste rose from approximately 25.5 kilograms per person in 2017 to 55.0 kilograms per person in 2023.

In terms of overall waste composition, textiles made up 18.5% of the RES waste stream in 2023, while textiles accounted for 17.7% of the ICI waste stream. This growth reflects a striking shift from previous years. Prior to 2011, Nova Scotia had not conducted systematic province-wide waste audits (Divert NS, 2023). Historical data from four waste audits conducted at inconsistent intervals between 2011 and 2023 show an increasing average percentage of textile waste in the province, from 10.7% in 2011 to 18.1% in 2023 across both sectors.

Waste Sector	2011	2012	2017	2023	Avg. over 4 audits
Percentage of Textiles (RES)	11.2%	16.3%	12.7%	18.5%	14.7%
Percentage of Textiles (ICI)	10.1%	10.4%	5.8%	17.7%	11.0%
Average	10.7%	13.4%	9.2%	18.1%	12.8%

Table 1: Percentage of RES and ICI textiles in NS landfills by waste audit year*

**Audits conducted in 2011 and 2012 were completed using a different methodology, making historical comparison challenging. The 2017 results were recalculated in 2023 to provide the most statistically valid result and allow for comparison with 2023 (Divert NS, 2023).*

While percentages tell part of the story, it is important to also consider the tonnage, since new waste management and diversion strategies impact the overall composition of the landfills in question. For example, when Nova Scotia implemented a ban on organics from the landfill, the percentages of other items rose relative to organics. For this reason, the amounts of textiles in landfills in Nova Scotia have been recorded in the table below in kilograms for comparison. The corresponding per-capita waste amounts have been calculated using the population estimates for the corresponding year, and in brackets next to the per capita waste amounts is the percentage that the per capita amount increased or decreased with respect to the previous period.

Waste Sector	2011 (kg)	Per capita (kg/person/yr)	2012 (kg)	Per capita (kg/person/yr) (+/-)	2017 (kg)	Per capita (kg/person/yr) (+/-)	2023 (kg)	Per capita (kg/person/yr) (+/-)
Textile Waste (Residential)	16,004,000	16.9	22,036,000	23.4 **(+38.50%)**	15,192,000	15.9 **(-32.10%)**	32,696,000	30.7 **(+93.10%)**
Textile Waste (ICI)	16,414,000	17.4	16,331,000	17.3 **(-0.60%)**	9,172,000	9.6 **(-44.50%)**	25,864,000	24.3 **(+153.10%)**
Total	32,418,000	34.3	38,367,000	40.7 **(+18.70%)**	24,364,000	25.5 **(-37.30%)**	58,561,000	55.0 **(+115.70%)**

Table 2: Per capita change in RES and ICI textile waste by waste audit year

These trends underscore the urgency of addressing the rapid growth in textile waste in Nova Scotia, particularly given its significant share of the overall waste stream. Both RES and ICI textile waste increased dramatically between 2011 and 2023, with RES increasing by 104.3% and ICI by 57.6%. While there was a slight increase from 2011 to 2012, the 2017 audit saw a decline, particularly in ICI textile waste, before more than doubling in 2023. While both RES and ICI textile waste increased significantly between 2017 and 2023, ICI textiles grew by 182.0%, outpacing the 104.4% increase in RES textiles. This indicates a growing issue with textile disposal from businesses, retailers, hospitality, and healthcare sectors, emphasizing the need for Extended Producer Responsibility (EPR) programs and corporate sustainability commitments.

EPR is a globally recognized framework that shifts the responsibility for managing post-consumer products from municipalities to producers. This model incentivizes producers to design products with sustainability and recyclability in mind. EPR programs have demonstrated effectiveness in diverting waste from landfills, reducing environmental impacts, and generating economic opportunities through recycling systems (Environment and Climate Change Canada [ECCC], n.d.).

2.2 Collection, Sorting, Grading, and Recycling of Textiles in Nova Scotia

The textile collection infrastructure in Nova Scotia consists of a mix of charitable and for-profit entities, with charities playing a dominant role. Organizations such as The Salvation Army Thrift Store, Diabetes Canada, Big Brothers Big Sisters, and the Society of Saint Vincent de Paul, alongside private enterprises like Guy's Frenchys and Savers Value Village, are instrumental in diverting textiles from landfills through donation programs and resale opportunities (Genge, 2021). These organizations collectively create substantial economic, environmental, and social impacts by operating collection bins, thrift stores, and direct donation programs, which help extend the lifespan of textiles while reducing waste (Genge, 2021). However, challenges such as illegal dumping and contamination at collection sites remain barriers to achieving optimal diversion rates. These issues often lead to increased operational costs for organizations managing bins and facilities, as well as lower recovery rates for clean, reusable materials (Genge, 2021).

Municipal involvement in textile collection remains limited across Canada, with notable exceptions including Colchester County, Nova Scotia, and the City of Markham, Ontario, both recognized leaders in this effort. In fact, Colchester County stood out in the most recent Nova Scotia waste audit as the only region where the percentage of textiles from both RES and ICI sectors in landfill decreased between 2017 and 2023 (Divert NS, 2023). However, it must be noted that the textile program in Colchester County, which started in 2018, was cancelled on March 31, 2025 due to market changes and new programming for PPP (P. Redden, personal communication, April 28, 2025). With the implementation of EPR for PPP, collection shifted from the municipality to the producers, who will not accept textiles.

Nova Scotia benefits from an established collection infrastructure for used textiles, primarily composed of donation bins, home pick-up services, and in-store collection programs. Major charities, independent thrift stores, and for-profit collectors manage hundreds of accessible collection points across the province, making it relatively easy for residents and businesses to donate unwanted textiles. Despite the established collection infrastructure, gaps remain in sorting and grading capabilities within Nova Scotia and across Canada.

Currently, when items move from the reuse stream to the end-of-life stream, often in the ICI sector via established thrift store networks, the majority of collected textiles are sent to sorting facilities outside the region or are exported to international markets (FTA, 2021; T. Colyn, personal communication, December 9, 2024), where they are graded and redistributed. This dependence on external markets presents risks, particularly as global scrutiny of textile waste exports, especially low-value items, continues to increase (North Africa Post, 2024; Veronese, 2025). A notable exception in the region is Acadian Wipers, a facility in Nova Scotia owned and operated by Guy's Frenchys. This facility serves as an international supplier and exporter of rags and used clothing (Acadian Wipers, n.d.). According to their website, all materials are hand-sorted at their facility in Digby, NS. While Acadian Wipers declined to participate in this study, it is likely that they are just as reliant on external markets as other organizations in this industry. This dependence on external markets creates vulnerabilities, especially considering the growing global scrutiny of textile waste exports, particularly low-value items.

According to the Observatory for Economic Complexity, there is a market for North American post-consumer clothing in African and South American countries, Pakistan, Ukraine, and more, however, it must be in resalable condition (2023a, 2023b). End-of-life clothing and other textiles will end up in an overseas landfill and will have adverse economic, social, and environmental effects on the region (ABC News, 2021; Cernansky, 2024; Johnson, 2024b; Shipley & Alarcon, 2024). Furthermore, these export markets are volatile for many reasons, including increased shipping costs, which rose from USD $1,342 in October 2023 to USD $5,900 in July 2024 (Statista Research Department, 2024). According to Charles Rozansky, owner and operator at North American Wool Stock, a Montreal-based company that brokers the sale of pre-and post-consumer textiles to export markets, the price per pound offered for product by overseas buyers has gone down, while the cost of shipping has gone up (personal communication, November 26, 2024). One charity shop in the UK reports that prices for second-hand clothing exports had gone down by 73% in the past three years (Veronese, 2025). As a result, some UK charity shops report having to turn down customer donations because they are unable to arrange for textile recycling (i.e., export) for items that cannot be sold (Gay, 2024). The sale of unsold or unfit-for-sale textiles to graders has traditionally provided a substantial revenue stream for these charities, especially those handling high volumes of stock (Gay, 2024). The loss of this income is having a significant impact on the financial sustainability of these shops. This volatility underscores the urgent need to develop local sorting, grading, and recycling infrastructure to reduce dependence on international markets.

The risks associated with relying on foreign markets for textile waste disposal have become increasingly evident in recent years. China's 2017 waste import

ban prohibited the import of 24 categories of solid waste, including textiles, in an effort to mitigate severe environmental pollution caused by "foreign garbage" (World Trade Organization, 2017a, 2017b). The sudden loss of China as a primary waste destination forced many developed countries, including Canada and the United States, to confront their inadequate domestic recycling infrastructure (Roche-Naude, 2019). Similarly, the East African Community, most notably Rwanda, proposed banning second-hand clothing imports in 2019 (Steffen, 2018; Ligami, 2018). Although Rwanda ultimately repealed the ban under U.S. trade pressure, these instances underscore the vulnerability of overseas markets and highlight the need for Canada to develop domestic solutions for textile waste.

This instability has been further exacerbated by the growing scrutiny of second-hand clothing exports from national stakeholders in Canada, including textile manufacturers, recyclers, textile industry associations, government entities, NGOs, as well as the general public. In 2024, ECCC launched a consultation with the textile and apparel sector regarding plastic waste and pollution. Some stakeholders recommended addressing issues linked to fast fashion by halting the export of textile waste (ECCC, 2024b). The COVID-19 pandemic also disrupted international markets, halting shipments entirely and reinforcing Western countries' reliance on foreign disposal solutions (Genge, 2021). Post-pandemic, these markets have significantly devalued Canadian second-hand items. For example, a national Canadian thrift store chain reported a drop in the price per pound offered by international buyers from $0.31 before 2020 to $0.16 in 2024 (Anonymous, personal communication, November 24, 2024). These challenges signal an urgent need for Canada to establish more resilient and sustainable domestic pathways for managing textile waste.

One potential solution for managing textile waste involves intercepting items that are still suitable for reuse before they are discarded and finding downstream options for those that do not get resold. This includes materials that are not sold at thrift stores but have not yet reached the end of their useful life. By prioritizing reuse, the environmental footprint of textile waste could be significantly reduced, and landfill contributions minimized. However, it must be noted that due to the overconsumption and oversupply of new textiles driven by the fast-fashion industry, it is impossible to find a way to reuse all clothing that has not yet reached the end of its useful life. Compounding this issue is the declining quality of textiles produced today. The increasing use of synthetic fabrics, which are less durable than natural fibers yet do not decompose easily, has created new challenges for reuse and recycling efforts (Hutcherson, 2023). Currently, this clothing is graded and, if it is in reusable condition and meets the requirements of an international buyer, exported as a commodity to overseas markets.

Finally, FTA (2021) highlights the critical role that sorting and grading facilities play in the development of a textile recycling industry in Canada. These facilities determine the fate of collected textiles, deciding whether items are suitable for resale or if they should be directed toward recycling. This decision-making process is essential, as it influences both the economic value and environmental impact of the textile waste stream.

By investing in local collection, sorting, grading, and recycling infrastructure, Nova Scotia can offer local businesses already operating in reuse, sortation, and export an opportunity to expand their business models while simultaneously keeping more items out of local landfill. Expanding domestic processing capabilities will not only mitigate the risks of global market volatility but also support the province's broader environmental and economic sustainability goals. However, this strategy leaves open the question of what to do with the lowest-graded materials that are unsuitable for reuse or recycling and that international or domestic markets may not want. Addressing this challenge will require parallel investments in innovative recycling technologies, such as fibre-to-fibre recycling, and the development of local end-markets for reclaimed materials to ensure that even the least desirable textiles are diverted from all landfills whenever possible.

Case Study:
Curbside Textile Collection in Colchester County, Nova Scotia

Colchester County, NS, integrated textiles into its curbside recycling program by allowing residents to place textiles in the "fibre bag" stream alongside materials like paper and cardboard. At the material recovery facility, textiles were manually sorted for reuse, rag markets, or waste-to-energy (R. Matheson & P. Redden, personal communication, November 25, 2024). Municipal leadership and public education campaigns helped keep contamination rates low, around 10%, and contributed to a rare decrease in textile waste between 2017 and 2023. However, the program faced economic pressures from manual sorting labour costs and was disrupted with the introduction of new EPR policies, which shifted the cost burden to producers and forced textiles out of the blue bag system.

3. Methodology

3.1 Scope and Limitations

This project aims to deliver recommendations customized to Nova Scotia's unique resources and infrastructure, with a strong focus on textile diversion and recycling. The current research is largely aimed at the textiles sector, although insights from related industries were included for relevant comparisons. For example, the PPP industry was examined due to its recently-mandated EPR framework (Nova Scotia Department of Environment and Climate Change, 2023).

The present study covers post-consumer textile waste from both RES and ICI waste streams, examining categories in line with Nova Scotia provincial waste audits, such as clothing, accessories, footwear, soft toys, bed linens, drapery, etc. (Divert NS, 2023). RES textile waste originates from private households and multi-family homes managed by municipalities, whereas ICI textile waste includes items from industries like hotels and hospitals, as well as unsold textiles from thrift stores that ultimately enter the waste stream. This study did not look at mattresses or furniture upholstery (Bulky Item category), carpets (C&D category), or other items excluded from the RES and ICI textile waste streams (Divert NS, 2023). It is important to note, however, that while there is a dedicated textiles category in the waste audit, not all textile-containing materials are captured within it. Textiles are also present in items classified under other categories, such as bulky items and construction and demolition (C&D) waste, meaning that the actual volume of textiles landfilled is likely higher than what is reported under the textile category alone.

This project seeks to identify key stakeholders within the value chain, uncover legislative levers and policy recommendations, and explore opportunities for end markets related to both the production of recycled feedstock and products made from it. It examines policy and legislation at both national and international levels to assess the factors influencing the textile recycling landscape. EPR programs are evaluated to determine their applicability to textiles in Nova Scotia. However, this initiative does not focus on the potential for upcycling, downcycling, or textile repair, nor does it estimate the volume and composition of potential post-consumer textile waste feedstock. Ultimately, it provides recommendations to strengthen textile recycling efforts in Nova Scotia over the short, medium, and long term.

This project encountered several limitations, including difficulties in distinguishing thrift store overstock from other sources of ICI textile waste. Approximately 30% of textile donations to thrift stores are resold to consumers, while the rest are either donated to other organizations, sold to graders, or sent to landfill (FTA, 2021). Graders are organizations that purchase unsold or low-grade textiles from thrift stores, sort them by type and quality, and either export them to resale markets abroad, repurpose them for industrial applications (such as wiping rags), or send them for recycling or disposal, depending on the condition and material composition (e.g., Acadian Wipers). These organizations are notoriously secretive, and as a result, accurately assessing the ICI textile waste stream remains elusive. While a number of sorter and grader organizations were consulted for this work, none that have a presence in Nova Scotia consented to be interviewed. Another limitation is the dearth of data related to the composition of post-consumer textile waste composition in Nova Scotia landfills. Without this data, it is difficult to analyze the potential feedstock volumes for specific recycling processes, many of which require fibre-sorted textiles (FTA, 2021).

Finally, while this project originally set out to assess the feasibility of textile recycling in the province by evaluating the existing infrastructure and industry landscape, it was found that there is nothing in existence in the province. As such, the project pivoted to study not the feasibility of optimizing or scaling what already exists, but rather to conduct a landscape scan that could serve as a foundation for infrastructure development from the ground up. The original intention was to analyze operational facilities, assess current processing capabilities, and identify pathways for scaling local textile recycling systems. However, during the course of the investigation, it became clear that Nova Scotia has no large-scale textile sorting or recycling infrastructure whatsoever, and very limited capacity even for fibre identification which is an essential prerequisite for most recycling technologies. Instead, the province relies heavily on thrift stores and exporters to manage post-consumer textile flows, with the majority of unsold or unfit items leaving the province entirely. The absence of infrastructure necessitated a re-scoping of the project

toward mapping the current state of affairs, identifying gaps, and providing actionable recommendations for what policies, infrastructure, technologies, and partnerships would need to be developed to make recycling feasible in the future.

3.2 Research Approach

The landscape scan aimed to evaluate the current state of textile waste management in Nova Scotia, identify opportunities for recycling and circular economy initiatives, and assess the feasibility of local recycling efforts. To achieve these goals, data was gathered from multiple sources to capture the full extent of the textile waste challenge and develop actionable recommendations. The methodology encompasses a thorough literature review, data collection through interviews, regulatory and policy analysis, technology assessment, market analysis, risk assessment, stakeholder analysis, and finally, recommendations for short, medium, and long term strategies.

3.2.1 Literature Review

The literature review provided critical insights into the scope, challenges, and opportunities for textile waste management and recycling, both globally and within the Nova Scotian context. Government data from sources such as Statistics Canada (2023; 2024) and ECCC (2020; 2024a; 2024b) helped establish a quantitative baseline, revealing that textile waste contributes significantly to landfill volumes, emphasizing the need for immediate intervention.

The Feasibility Study of Textile Recycling in Canada by FTA (2021) was particularly instrumental in highlighting the limitations of the current national infrastructure, including issues of contamination, limited sorting and recycling capacity, and a lack of stable markets for recycled materials. The study also underscored the importance of stakeholder collaboration and policy development to scale solutions effectively. Nova Scotia-specific data, especially from the 2023 Divert NS Waste Audit, confirmed a dramatic rise in textile waste since 2017, across both RES and ICI waste streams (Divert NS, 2023). This trend demonstrated a growing urgency for localized strategies tailored to the province's infrastructure and market realities.

Academic and industry research further contextualized these findings, linking the rise in textile waste to global fast fashion trends and unsustainable consumer behaviours (Rai, 2025; Veurink, 2025). These sources also explored the environmental consequences of synthetic and blended fibres, including microplastic pollution and greenhouse gas emissions from natural fibre decomposition.

Finally, case studies from policies and successful programs, such as the recently enacted Responsible Textile Recovery Act (California Product Stewardship Council [CPSC], n.d) and industry and brand partnerships (SGB media, 2024; Velasquez, 2025), illustrated best practices in textile collection, sorting, reuse, and pathways for recycling. These models offered scalable frameworks and policy insights applicable to Nova Scotia's emerging textile circularity efforts.

3.2.2 Data Collection / Expert Interviews

The data collection process for the landscape scan was designed to comprehensively assess the state of textile waste management and circularity in Nova Scotia. A mixed-methods approach was employed, combining qualitative and quantitative data sources to ensure a robust analysis.

Primary data collection involved stakeholder interviews, analysis of textile waste audit data, and site visits. A total of 31 individuals were identified and contacted for interviews based on their relevance to the textile waste ecosystem, with efforts made to include a balanced representation across sectors such as government, industry, nonprofit organizations, sorting and grading businesses, and recycling operations. Participants were selected using purposive sampling, which allowed the research team to target individuals with specialized knowledge, operational experience, or decision-making authority related to textile waste management. Of those contacted, 25 agreed to participate in interviews, while six individuals either declined or did not respond to the invitation. Interviews were semi-structured in format and conducted either virtually or in person, depending on availability and location.

The interviews targeted key stakeholder groups to gather insights on current disposal practices and waste stream composition. Global representatives of EPR programs were also interviewed to inform the development of a textile-specific EPR framework for Nova Scotia. Further participants included representatives from the textile industry such as retailers, recyclers, and nonprofit organizations involved in clothing donation, resale, sortation, grading, and export who provided diverse perspectives on textile waste reduction and the challenges of managing post-consumer textiles. Additionally, interviews

were conducted with staff at recycling facilities to understand existing processing capacity, interest in textile-specific waste management, and potential for collaboration on pilot projects.

To supplement these qualitative insights, quantitative data from Divert NS textile waste audits was analyzed. These audits, conducted in 2011, 2012, 2017, and 2023, offered longitudinal data on the volume and composition (RES vs. ICI) of textile waste in Nova Scotia's landfills and allowed for the tracking of changes across both RES and ICI waste streams.

The principal investigator also conducted site visits to waste management facilities, donation centers, thrift stores, and wholesale distribution centers for second-hand goods to observe textile diversion practices firsthand and identify logistical and infrastructural challenges. Where feasible, visits were extended to textile recycling organizations located in Eastern Canada. The investigator additionally explored opportunities for research and development in textile recycling technologies by speaking with the leaders of laboratories at postsecondary institutions. Discussions with researchers and industry partners at these institutions helped to identify potential opportunities for collaboration on future pilot projects.

Finally, insights gained from interviews and site visits were triangulated with findings from secondary research, including academic studies, regulatory documents, market reports, and policy analyses. This triangulation ensured that conclusions were well-supported and reflective of both lived experience and broader trends in textile waste management and circular economy practices.

3.2.3 **Data Analysis**

The interview data collected for the TTNS project provides qualitative insights into the challenges, opportunities, and stakeholder perspectives on textile circularity in Nova Scotia. The sample was diverse in both sectoral representation and organizational scale, ranging from individual subject matter experts (SMEs) to international textile brokerages. Data from these interviews were analyzed thematically to identify common barriers, proposed solutions, stakeholder sentiment, and points of alignment or divergence across sectors.

A total of 25 interviews (N=25) were conducted with representatives from 24 distinct organizations between November 2024 and April 2025. The sample was intentionally diverse, spanning government agencies, recycling and waste management companies, nonprofit organizations, textile industry representatives, research and advocacy groups, second-hand retailers, exporters, and SMEs. The largest proportion of interviews (24%) came from the recycling and waste management sector, whose insights were critical for identifying infrastructure gaps, logistical constraints, and opportunities for localized textile recycling. Government agencies represented 16% of the total, offering valuable regulatory perspectives on provincial waste policy and EPR frameworks. Nonprofit organizations (non-retail) constituted 20% of the sample and contributed important insights related to policy advocacy and stakeholder engagement.

Four interviews (16%) were conducted with sorters, graders, and exporters, key players in the movement of textiles through global markets, who illuminated the challenges of shifting demand, market volatility, and dependence on international buyers. None of the sorters, graders, or exporters interviewed conducted operations in Nova Scotia. Two second-hand retailers (8%) shared how declining resale value and donation quality are shaping the economics of reuse. The sample also included one textile brand representative and one research and advocacy group (each accounting for 4% of the total), and two SMEs (8%) providing specialized insights on sustainability, innovation, and circular product design. This cross-sectoral representation ensured that findings were informed by the full range of operational, policy, and market perspectives shaping Nova Scotia's textile ecosystem. See **Appendix A** for a complete list of organizations interviewed.

The semi-structured nature of the interviews allowed for consistent data collection while providing flexibility to explore areas of interest specific to each stakeholder's role in the textile ecosystem. A core interview guide was developed to ensure alignment with the study's objectives, covering topics such as infrastructure gaps, market conditions, policy barriers, stakeholder collaborations, and potential solutions for textile circularity in Nova Scotia. See **Appendix B** for a summary of interview questions asked. Interviewees were encouraged to elaborate on their experiences, provide contextual examples, and identify emerging trends or pressing concerns within their sector. Of the 25 interviews conducted, 24 were held online via video conferencing platforms (Google Meet), and one was conducted in person. All interviews were recorded using Otter.ai transcription software with the informed consent of participants.

After transcription, interview data were reviewed and coded to identify common themes. Several key themes emerged across sectors, including a shared recognition of infrastructure limitations, uncertainty surrounding EPR implementation, market instability for exported second-hand textiles, lack of market for recycled textile feedstock, and the need for public education and coordinated policy reform. These themes formed the foundation for subsequent analysis and informed the development of the project's recommendations.

The general sentiment of respondents towards textile recycling in Nova Scotia was as follows:

Sentiment Category	2011
Optimistic about textile recycling expansion	36% (9/25)
Cautiously optimistic (supportive but with concerns)	40% (10/25)
Pessimistic about feasibility in Nova Scotia	24% (6/25)

Table 3: Interviewee sentiment distribution towards textile recycling in Nova Scotia

Of the 25 stakeholders interviewed, 36% (N=9) expressed strong optimism about the future of textile recycling in Nova Scotia. These stakeholders highlighted the province's leadership in waste audits and robust thrift market, public interest in sustainable practices, and the emergence of technologies such as closed-loop recycling for technical fibres and early-stage textile-to-textile pilot projects. Several referenced ongoing collaborations between municipalities, charitable collectors, and industry leaders as indicators of a growing ecosystem for circular textiles.

"With the right coordination, Nova Scotia could leapfrog other provinces in textile circularity."

-Interviewee

40% (N=10) were cautiously optimistic, believing in the potential of textile diversion efforts but voicing concerns about critical gaps in policy enforcement, consistent funding, regional equity in infrastructure, and lack of mandatory collection systems. Many in this group stressed that while momentum exists, efforts remain fragmented. Charities and sorters in particular expressed concern about market saturation, competition from unregulated collectors, and unstable downstream markets.

"We're spinning our wheels without a provincial roadmap."

-Interviewee

The remaining 24% (N=6) were pessimistic, doubting the current feasibility of meaningful textile recycling in Nova Scotia without strong regulatory action and substantial public investment. These participants pointed to the cost disparity between recycling and landfill disposal, the lack of mandatory EPR, and limited access to local processing infrastructure. This group emphasized the need for top-down regulatory support, including disposal bans and public procurement mandates, to shift the economics in favour of recycling.

"There's no economic case for textile recycling right now, at least not without policy backing."

-Interviewee

During interviews, a clear picture emerged of the core barriers impeding the growth of textile recycling in Nova Scotia. Interviewees were asked to identify major system-level gaps, policy limitations, and operational constraints. Their responses clustered around six dominant themes, which align closely with the barriers they view as most pressing for the province to address.

Barrier Theme	% of Interviews Addressing Theme	How to Address It	Linked Recommendation
Lack of textile recycling infrastructure	88% (22/25)	Invest in existing regional collection infrastructure, and new regional sorting and processing infrastructure	• 9.1.2 - Municipal Support for Textile Collection Programs; • 9.2.2 - Develop Sorting and Processing Infrastructure • 9.3.2 Investment in Domestic Recycling Facilities
High cost of textile recycling operations	76% (19/25)	Provide financial incentives, grants, or subsidies to lower startup and operational costs; Pilot programs to find the best fit	• 9.1.4 Pilot Mechanical Recycling Projects • 9.2.3 Stimulate Markets for Recycled Feedstock
Challenges with EPR implementation	72% (18/25)	Clarify timelines and mandates; engage stakeholders in policy co-development	• 9.2.1 - Regional and National Coordination • 9.2.4 - Establish a PRO • 9.2.5 - Pilot a Voluntary EPR Program for Textiles
Market limitations and instability for recycled/second-hand textiles	68% (17/25)	Support innovation and matchmaking for local end-markets; Invest in onshoring sorting and processing	• 9.2.2 Develop Sorting and Processing Infrastructure • 9.2.3 - Stimulate Markets for Recycled Feedstock
Policy and legislative gaps	64% (16/25)	Introduce landfill bans and formalize EPR through provincial legislation	• 9.1.3 - Enact Supportive Policies for Textile Waste Diversion • 9.3.1 - Mandatory Provincial EPR Program • 9.3.3 - Introduce Textile Disposal Bans
Lack of demand for recycled feedstock	60% (15/25)	Introduce recycled content mandates for manufacturers, offer tax incentives to businesses using recycled textiles, and fund innovation partnerships to create high-value end markets	• 9.1.2 - Municipal Support for Textile Collection Programs • 9.1.3 - Enact Supportive Policies for Textile Waste • 8.2.3 - Stimulate Markets for Recycled Feedstock
Limited public awareness and education	56% (14/25)	Launch targeted public education campaigns and school-based textile literacy	• 9.1.1 - Public Awareness and Consumer Education

Table 4: Barriers to textile recycling in NS and how to address them

Infrastructure gaps were the most cited barrier, with 88% (N=22) underscoring the urgent need for local sorting and processing facilities. Interviewees emphasized that Nova Scotia currently lacks scalable textile recycling opportunities, and it was noted that collection processes are inconsistent across municipalities and leading to overreliance on landfill disposal or export markets. Financial barriers were also prevalent, with 76% (N=19) highlighting the high costs of logistics, processing, and technology required to scale textile recycling. Many noted that the cost of transporting post-consumer textiles to other provinces or internationally makes recycling less viable than landfill disposal. EPR implementation challenges were raised by 72% (N=18), who cited uncertainty around policy timelines, inconsistent jurisdictional alignment, and the lack of a regulatory framework for textiles. Stakeholders expressed concern that, without strong provincial leadership and industry buy-in, EPR might not be effectively operationalized.

Despite ongoing challenges, stakeholders identified several proposed solutions to promote textile circularity in Nova Scotia.

Proposed Solution	% of Stakeholders Supporting This Idea
Develop local textile recycling facilities	88% (22/25)
Implement EPR for textiles	72% (18/25)
Address challenges related to textile feedstock end-markets	64% (16/25)
Greater focus on feedstock development and innovation	60% (15/25)
Expand public education on textile waste	60% (15/25)
Invest in sortation and collection systems	56% (14/25)

Table 5: Proposed solutions to promote textile circularity in Nova Scotia

A large majority of interviewees (88%, N=22) advocated for the development of local textile recycling facilities. Participants emphasized that exporting textile waste is increasingly unsustainable due to export market volatility, geopolitical instability, shifting trade policies (including tariffs), and competition from low-cost, poor-quality fast fashion garments flooding the global market. Additionally, 72% (N=18) supported the implementation of EPR policies for textiles, viewing them as essential to achieving long term reductions in textile waste. 64% (N=16) of participants recommended that Nova Scotia should stimulate domestic markets for recycled materials by adopting recycled content requirements in procurement policies, supporting manufacturers willing to integrate recycled fibres, and establishing certifications or labeling schemes to assure buyers of material quality, among other things. 60% (N=15) of stakeholders referenced the importance of either developing feedstock markets, driving innovation in textile recycling end solutions. Finally, 60% (N=15) of respondents stressed the importance of expanding public education campaigns to shift consumer behavior and increase diversion rates, while 56% (N=14) recommended investing in coordinated sortation and collection systems to improve material recovery across the province.

3.2.4 **Limitations**

While this landscape scan offers a comprehensive overview of the textile reuse and recycling ecosystem in Nova Scotia, several limitations constrain the findings and should be considered when interpreting the results. These limitations primarily stem from gaps in participation, data availability, and the evolving nature of policy and infrastructure.

Two of the province's most influential actors in the secondhand retail and reuse sector, Savers Value Village and LML Traders/Guy's Frenchys/Acadian Wipers, declined to participate in the interview process. As large-scale for-profit operators with considerable market share and integrated supply chain systems, these organizations play a pivotal role in the movement, resale, and disposal of textiles in Nova Scotia. Their absence limits the report's ability to fully capture the dynamics of the reuse market, particularly regarding export strategies, unsellable inventory management, and potential alignment with future regulatory frameworks like EPR. Without their input, the study may also underrepresent sector-specific operational challenges or innovations.

Another major limitation is the lack of comprehensive, material-specific data on textile waste in Nova Scotia. Municipal audits tend to group all textiles into broad categories, offering little insight into fabric composition (e.g., cotton, polyester, blended fibres) or item-level volumes (e.g., household linens vs. apparel). This makes it difficult to assess the suitability of various recycling technologies or to estimate the capacity needed for sorting and processing infrastructure. Accurate data on material flows is essential for both lifecycle impact assessments and the development of targeted investment strategies.

> **“With the right coordination, Nova Scotia could leapfrog other provinces in textile circularity.”**
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Finally, Nova Scotia’s textile system exists within a rapidly shifting policy environment. At the time of this study, several regulatory mechanisms, most notably EPR for textiles and potential landfill bans, were under discussion but not yet implemented. This created a level of uncertainty that influenced stakeholder responses. Many interviewees expressed support for policy development but were hesitant to speculate on operational impacts, investment decisions, or compliance strategies in the absence of finalized legislation. As a result, the findings may reflect cautious optimism rather than concrete action.

In parallel, infrastructure development for textile collection, sorting, and processing remains fragmented and in early stages. While some municipalities and private operators are exploring pilot programs or small-scale facilities, there is no standardized, province-wide system for textile diversion. This lack of coordination makes it difficult to assess scalability or cost-effectiveness of proposed solutions. Additionally, any future infrastructure development will likely depend on provincial leadership and funding mechanisms that are still under negotiation. Together, these shifting dynamics mean that this report captures a snapshot in time, one that may require regular updating as policies become codified and infrastructure plans move forward.

4. Regulatory and Policy

4.1 Existing Policies

4.1.1 Nova Scotia's Waste Management Framework

Nova Scotia's waste management system is grounded in the Solid Waste-Resource Management Regulations, under the Environment Act. These regulations are overseen by the provincial Department of Environment and Climate Change and provide a robust foundation for waste diversion and environmental protection efforts. The framework aligns with principles of sustainability, such as reducing, reusing, and recycling, and incorporates an overarching commitment to environmental stewardship (Nova Scotia Department of Environment and Climate Change, 2023). The province has been a national leader in waste management, being the first in Canada to implement a ban on organic waste in landfills in 1996, which has contributed to high diversion rates for organics (Nova Scotia Department of Environment and Climate Change, 2023).

The *Environmental Goals and Climate Change Reduction* Act ("the Act"), passed in 2021, strengthens Nova Scotia's waste management framework by explicitly promoting a circular economy and supporting the development of EPR programs (Bill 57, 2021). The Act outlines 28 goals that integrate environmental protection with economic growth, including specific commitments to resource efficiency and waste reduction. Among its most ambitious targets is the goal to reduce solid waste disposal to 300 kilograms per person annually by 2030, representing a significant decline from current disposal rates.

To achieve this, the Act calls for systemic changes in how materials are managed across their life cycle. This includes diverting textiles from landfill through expanded recovery systems, reuse, and recycling. The Act's emphasis on EPR is particularly relevant for textiles, a sector that has long operated without clear regulatory oversight in the province. By mandating provincial action on circular economy development, the Act provides both a policy foundation and accountability mechanism, encouraging collaboration among municipalities, industry, and civil society. It also signals to investors and system planners that textile waste reduction is a government priority, paving the way for coordinated infrastructure, market development, and eventually, EPR.

4.1.2 Rising Popularity of EPR

EPR as a policy approach originated in Sweden in 1975 with legislation targeting packaging waste (Franklin, 1997) and has since expanded globally across a wide range of product categories. In Canada, EPR is regulated at the provincial level, and while there are over 80 EPR programs in operation nationally (Retail Council of Canada, n.d.), none currently cover textiles. Nova Scotia has several established EPR and stewardship programs, including industry-managed systems for electronics, paint, and used oil, as well as stewardship initiatives for tires and beverage containers (Butler, 2022; Nova Scotia Department of Environment and Climate Change, n.d.). The province's largest and most recent EPR initiative is for printed paper and packaging (PPP), announced in 2021, which will apply to most residential recycling materials placed in blue bags (Butler, 2022).

Despite this infrastructure, Nova Scotia lacks a formal EPR framework for textiles. Research estimates that 938,000 tonnes of textiles are sent to Canadian landfills annually, with Nova Scotia contributing approximately 58,561 tonnes, or 6.2% of the national total (Environment and Climate Change Canada, 2024; Divert NS, 2023). In the absence of regulation, most RES and ICI textile waste is either landfilled or managed by charities and for-profit operators for resale, export, or downcycling (NACTR, 2023). This fragmented system has led to underdeveloped diversion infrastructure, limited local processing capacity, and a heavy reliance on volatile international markets (Cheminfo Services, 2022).

Introducing EPR for textiles would transfer financial and operational responsibility from municipalities to producers, increasing accountability across the supply chain. Such frameworks can promote upstream innovation in product design, including modular construction, recyclable materials, and repairability (Canadian Council of Ministers of the Environment [CCME], 2009). The CCME's Canada-wide Action Plan for EPR calls for jurisdictions to work toward integrating textiles into operational programs within eight years of adoption (CCME, 2009), yet no province has taken the lead to date.

While Canada remains behind, international momentum is building. In 2024, California became the first U.S. state to enact EPR legislation for textiles, with Washington and New York introducing similar bills soon after (Compliance and Risks, 2025). These developments reflect a broader shift in policy thinking, recognizing that the growing environmental and economic burden of textile waste demands systemic solutions.

Economically, the absence of textile EPR leaves municipalities to shoulder the cost of managing a high-volume waste stream. A well-designed EPR program could alleviate these pressures while advancing circular economy goals by encouraging producers to invest in sustainable product design and end-of-life solutions. As seen in other sectors, EPR can substantially improve diversion and recovery rates (ECCC, n.d.; CCME, 2023). However, successful implementation will depend on adapting EPR models to fit local realities and leveraging existing systems, ensuring the transition is both effective and equitable (Ellen MacArthur Foundation, 2024).

4.2 Insights from International Textile EPR Programs

EPR adoption is gaining momentum, especially in the EU (Organisation for Economic Co-operation and Development [OECD], 2024) and the US (Jaynes, 2024). In the EU, two major policy developments have accelerated action: the 2018 revision of the Waste Framework Directive, which mandates that EU Member States establish separate collection of textiles by 2025, and the 2025 provisional agreement to amend the Directive, requiring mandatory EPR schemes for textiles (De La Feld, 2025). This approach is reinforced by the EU's broader Circular Economy Action Plan, emphasizing eco-design, material durability, and mandatory textile waste separation. France's EPR model, launched in 2007, now achieves a 60% collection rate, well above the European average of 8%, and incentivizes reuse and repair through eco-modulated fees and repair credits (OECD, 2024; Down to Earth, 2024).

Other European countries are following suit: The Netherlands, Spain, Italy, and Sweden have all moved toward legislated textile EPR frameworks. Meanwhile, the OECD notes that several countries outside Europe, including Australia, Colombia, and South Korea, are piloting voluntary EPR programs for textiles, providing additional models for consideration (OECD, 2024). In Sweden, the introduction of mandatory separate textile collection at the start of 2024 resulted in a 60% increase in textiles collected in the first two months of the year compared to the same period in 2023 (RTE, 2024). While this marks a substantial improvement in diversion rates, municipalities have struggled with the sudden influx, highlighting the importance of adequate infrastructure and long term planning. Many recycling centers have been overwhelmed, and in some regions without viable sorting facilities or markets for textiles, incineration of textiles continues (RTE, 2024).

In the United States, California has made history as the first state to establish a mandatory EPR program for textiles through the Responsible Textile Recovery Act (SB 707), signed into law in 2024. The law applies to companies with at least $1 million in global sales operating in California and requires them to implement textile collection and recycling systems by 2030 (California State Legislature, 2024). Key features include eco-modulated fees, strong incentives for repair and reuse, and financial support for local recycling initiatives (CPSC, 2024; Frontiers in Sustainability, 2022). California's leadership has inspired similar legislative proposals in New York and Washington.

Taken together, these international examples demonstrate a growing global consensus that EPR is a powerful tool for tackling textile waste. Evidence from France, Sweden, and California highlights how financial incentives under EPR drive improvements in product design, promote reuse and repair, build resilient recycling systems, and relieve municipal governments from shouldering the full burden of managing post-consumer textile waste (RTE, 2024).

4.3 Tailoring Textile EPR to the Canadian and Nova Scotian Context

The introduction of EPR for textiles in Canada presents an opportunity to significantly reduce municipal waste management costs, enhance textile recovery infrastructure, and promote circular economy practices. Evidence from successful programs in France and Sweden suggests that financial incentives linked to EPR can drive meaningful improvements in product design and collection, including:

- The use of more durable and recyclable materials,
- The adoption of eco-design principles emphasizing modular construction, and
- The integration of take-back and repair programs by brands (Policy Hub, 2021).

Furthermore, the European Commission's 2025 strategy mandates the separate collection of textiles across

all EU nations, creating a strong policy precedent that Canada could follow to align with global best practices in textile waste reduction (European Commission, 2022). Adopting and adapting an established framework like the EU's is often more efficient and effective than building a program from scratch, enabling Canadian policymakers to leverage proven strategies while tailoring solutions to the domestic context.

Spotlight: **Opportunities for Smaller Jurisdictions**

Smaller jurisdictions, such as Nova Scotia, can also benefit from the adaptable elements of emerging EPR models. Eco-modulated fees, which adjust producer fees based on the environmental impact of products, are a cornerstone of legislation such as California's SB 707 and could be adapted to the Canadian context. For instance, products designed with lower environmental impacts could incur lower fees, thereby incentivizing sustainable innovation at the design stage.

Additionally, building strong partnerships with nonprofits, repair businesses, and community organizations will be critical for extending textile lifespans and ensuring public buy-in for new systems (J. Brasch, personal communication, November 20, 2024). Public education campaigns will also be essential to increase consumer awareness, foster responsible disposal habits, and drive participation in textile diversion initiatives. Addressing key infrastructure gaps, such as the current lack of advanced sorting facilities, would further strengthen Halifax's, and broader Nova Scotia's, capacity to process and recycle textiles locally.

Finally, the establishment of a local Producer Responsibility Organization (PRO) is an essential step for building the foundation for a successful EPR program. It will streamline collection, processing, and reporting efforts under an EPR framework, ensuring compliance and accountability across the supply chain while maximizing resource recovery.

4.4 The Role of Multi-Stakeholder Initiatives (MSIs)

MSIs are collaborative platforms that bring together businesses, civil society, governments, and other relevant actors to tackle shared challenges related to sustainability, human rights, and responsible production (MSI Integrity, n.d.). By fostering dialogue and consensus, MSIs enable the development of collective solutions, set industry standards, influence policy development, and promote greater accountability (MSI Integrity, n.d.). In the textile sector, MSIs are crucial drivers of innovation, supply chain transparency, and circular economy practices (FTA, 2021). Their ability to coordinate efforts across diverse stakeholders is essential for advancing sustainable systems at scale.

In Canada and internationally, MSIs have emerged as vital tools for promoting textile circularity. Initiatives like the Canadian Circular Textiles Consortium (Canada), Accelerating Circularity (United States), and the Better Cotton Initiative (global) demonstrate the power of collaborative efforts in transforming complex supply chains. However, gaps remain, particularly in engaging sectors like textile sorting, grading, and exporting, which often operate with limited transparency. MSIs offer a critical opportunity to bridge these gaps, build stakeholder trust, and prepare the industry for forthcoming regulations, such as Canada's Federal Plastics Registry for synthetic textiles (ECCC, n.d.).

MSI Example (Canada): **Canadian Circular Textile Consortium (CCTC)**

In Canada, the Canadian Circular Textiles Consortium (CCTC) was established in 2023 by Fashion Takes Action with financial support from ECCC. With over 120 stakeholders spanning brands, manufacturers, NGOs, sorters, and municipalities, CCTC aims to foster collaboration, share resources, and reduce duplication of effort to accelerate the transition to a regenerative textile economy (Fashion Takes Action, 2023; K. Drennan, personal communication, March 5, 2025). Despite its strong potential, participation from sorters and exporters remains limited, emphasizing the need for broader industry engagement.

5. Technology Assessment

Textile recycling involves reprocessing used clothing and textiles into new products through a range of mechanical, chemical, and biochemical methods (Juanga-Labayen, Labayen, & Yuan, 2022). Successful recycling begins with sorting materials according to fibre type and/or colour and preparing them by removing inclusions such as buttons, zippers, and other non-fibre elements, a process known as detrimming. When garments consist of multiple fabrics, like linings, shells, and seams, these components must be separated, making preparation for recycling complicated (Recycling Inside, 2023). Mechanical recycling, one of the most established methods, entails shredding textiles into fibres without altering their chemical structure. This process is generally suited for producing lower-grade products, such as insulation, carpet padding, or rags, where fibre strength is less critical (Juanga-Labayen et al., 2022).

Chemical recycling, by contrast, involves breaking down synthetic fibres like polyester into their base monomers, enabling the production of high-quality, apparel-grade recycled fibres (FTA, 2021). This method supports closed-loop recycling systems where materials can be regenerated for new textile production. Biochemical recycling, an emerging area of innovation, applies biological processes such as enzymatic hydrolysis to recover valuable materials, particularly from blended fibre textiles that are otherwise difficult to recycle mechanically or chemically (Juanga-Labayen et al., 2022).

Each recycling pathway presents distinct opportunities and infrastructure needs depending on the fibre composition of the feedstock and the desired end products. In Nova Scotia, effective implementation of textile recycling systems will depend on a comprehensive understanding of these technologies, an evaluation of their suitability to local textile waste streams, and targeted infrastructure development. This section provides an overview of sorting and fibre separation technologies, assesses the available recycling methods, and identifies infrastructure priorities necessary to support large-scale textile recovery and recycling efforts across the province.

MSI Example (Global):
Better Cotton Initiative

The Better Cotton Initiative is a global MSI that promotes more sustainable cotton farming practices by uniting farmers, brands, retailers, and civil society groups. Through a standards-based approach, it improves environmental and labour conditions in cotton production while scaling sustainable sourcing practices across global supply chains (Better Cotton Initiative, n.d.). Its success in transforming cotton supply chains provides a working model for how MSIs in the textile sector can drive large-scale sustainability outcomes through certification, stakeholder alignment, and continuous improvement frameworks.

5.1 Overview of Existing Textile Sorting Technologies

5.1.1 Sorting Technologies

Textile sorting occurs at multiple points across a garment's life cycle, and understanding these distinct phases is essential when discussing recycling technologies. The first sort assesses textiles for resale, usually in thrift store sorting rooms. Staff perform an initial evaluation to determine whether items are saleable in local retail thrift stores. Items that are stained, torn, or otherwise unsellable, are rejected and redirected out of the local reuse stream at this stage. The second sort is where textiles are graded for sale as a commodity. Items not retained for local resale are transported to large-scale grading facilities. Here, they undergo a second sort where textiles are classified into market categories such as credential, mixed rags, and more based on condition, fabric type, and suitability for specific export markets (Bank and Vogue, n.d.). These are then sold by the pound. Finally, the third sort is where items are sorted by fibre (and sometimes colour) for recycling. Low-value or unsellable items, especially those unfit for reuse or export, may enter recycling

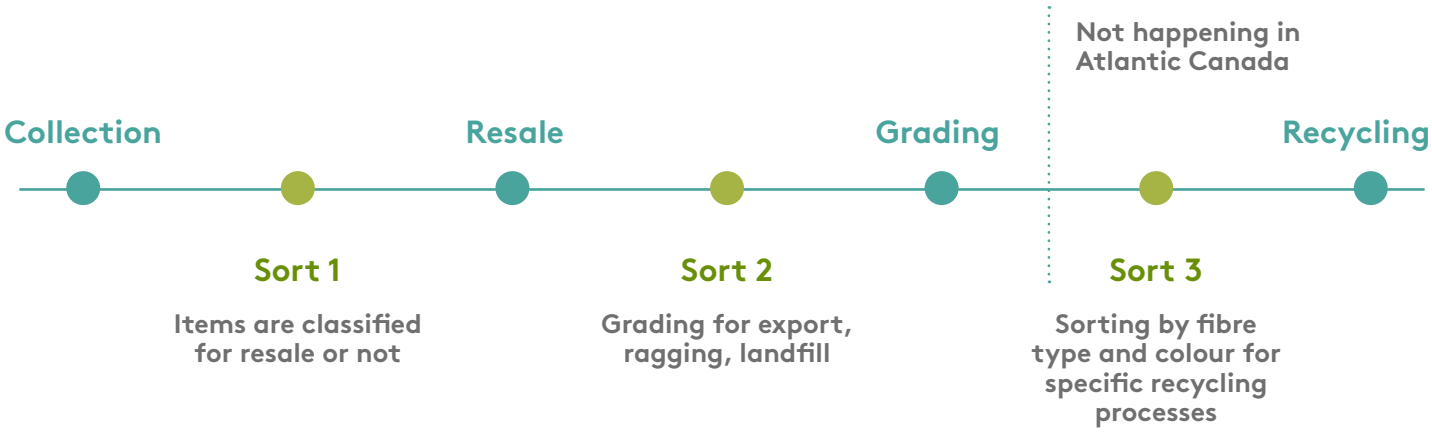
streams. This stage requires specialized fibre-specific sorting, separating cotton from polyester, for example, and is currently underdeveloped in Canada. It is this third sort that is central to the effective recycling of textiles.

This section focuses on the third sort, also referred to as fibre sorting for recycling. Sorting is a critical step in textile recycling, as most recycling technologies require feedstock to be separated by fibre type and/or colour for efficient processing. FTA (2021) identifies three primary categories of sorting technologies:

1. **Manual Sorting:** Relies on human labour and expertise to classify textiles. This method is particularly effective for reuse markets, but it is limited in scalability and operational efficiency due to its labour-intensive nature.
2. **Semi-Automated Sorting:** Combines manual labour with machine assistance, increasing the speed and accuracy of sorting for specific textile types. This hybrid approach balances efficiency with cost-effectiveness and could serve as an intermediary step toward full automation.
3. **Fully Automated Sorting:** Utilizes advanced technologies, such as Near-Infrared (NIR) scanning, to identify and separate textiles based on fibre composition and colour. While this method shows significant promise, it requires substantial investment and faces challenges in handling mixed or contaminated textile materials.

One company helping make the transition to fully automated sorting is Sortile. With offices in both the US (New York) and Chile, Sortile provides technology solutions that enable the identification, sorting, and traceability of textiles, aiming to maximize material recovery and enhance circularity in the fashion industry. Their device utilizes NIR technology and artificial intelligence to determine textile compositions, facilitating efficient sorting processes. Additionally, Sortile offers software that aggregates and analyzes material data, providing insights into fibre composition, color, and environmental impact (Sortile, n.d.).

In Canada, the level of automation in sorting and grading operations is not well-documented. There is one company, Debrand, that is actively engaged in the sortation of mostly pre-consumer textiles via partnerships with retail brands to help them deal with overstock and returns. Debrand uses different types of technology and human labour in a semi-automated sorting system in order to identify fibre type, condition, and the best end-use for items (A. Eleiter, personal communication, November 19, 2024). Transitioning from manual to semi-automated sorting could help maintain the existing reuse model while efficiently processing lower-grade materials for recycling based on their material properties (FTA, 2021). Further investment in semi and fully automated sorting technologies should be considered, especially if current reuse systems are to be restructured toward more localized approaches. Since these systems are largely reliant on increasingly volatile export markets, this shift is a proactive measure to ensure appropriate management of waste textiles in the long term, should these markets rupture. If the goal is to sort more textiles locally for recycling, rather than exporting or landfilling them, equipping large-scale sorters such as The Salvation Army, Savers Value Village, or Guy's Frenchys with fibre-sorting technology will be essential to unlock recycling pathways for low-grade or discarded materials.



Sorting Process Overview — The Three Sorts

Examples of Companies Engaged in Textile Sorting Operations and Manufacture of Textile Sorting Technology for Textile Recycling Worldwide

Company	Country	Region	Year Established	Sorting Process	Sorting Outlets
Debrand	Canada	British Columbia	2007	Semi-Automated	Various
FabScrap	USA	New York	2016	Manual	Reuse, recycling
Global Clothing Industries	USA	Georgia	Unknown	Unknown	Wholesale, downcycling, recycling
Guy's Frenchys	Canada	Nova Scotia, New Brunswick	1972	Unknown	Retail, wholesale, downcycling
NewRetex	Denmark	Bjerringbro	2021	Automated	Recycling, downcycling, incineration
Nouvelles Fibres Textiles	France	Amplepuis	Unknown	Automated	Recycling
Refiberd	USA	Unknown	Unknown	Automated	Recycling
The Salvation Army Thrift Store	Canada, United Kingdom, Australia	Various	1882	Manual, Automated	Retail, wholesale
Savers Value Village	Various	Various	1954	Unknown	Retail, wholesale
Sortile	USA, Chile	New York	2021	Automated	Recycling
Tomra	Norway	Asker	Unknown	Automated	Recycling
Valvan Baling Systems (& fibresort Technologies)	Belgium	Menen	1990	Semi-Automated, Automated	Various

Table 6: A sample of companies engaged in the textile sorting industry worldwide

5.2 Overview of Existing Textile Recycling Technologies

5.2.1 Mechanical Recycling

Mechanical recycling, the most established form of textile recycling, involves processes such as shredding and cutting to break textiles down into fibres for reuse in products like insulation, stuffing, industrial materials, or to be respun into new thread (Sandin & Peters, 2018). There are two kinds of mechanical recycling processes, both requiring shredding of fibres: open-loop recycling and closed-loop recycling.

Before textiles can be shredded into smaller pieces, hardware components such as zippers and buttons must be removed, often requiring manual intervention (Sandin & Peters, 2018). Open-loop recycling, sometimes referred to as downcycling, is the process where fibres are shredded and formed into non-woven fabrics or insulation and other materials rather than being reused in new textiles (Sandin & Peters, 2018). This process

is suitable for all textile types, including fibre blends (Sandin & Peters, 2018). The resulting material has applications in felting, upholstery, and any application where the fibre length is too short to be used in the production of a new fabric. Industrial wiping rags, a long-established form of textile recycling, primarily consist of non-resalable textiles, particularly post-consumer garments made of 100% cotton that are mechanically cut and repurposed into rags (Cheminfo Services Inc., 2022; Wipeco, n.d.). Similarly, textiles are downcycled for use in automotive and housing insulation, mattress padding, and protective gear (FTA, 2023). Finally, mechanically processed textile waste is being explored as a raw material for fibreboards and composite materials, reducing dependence on virgin wood and plastic (Cheminfo Services Inc., 2022). Textile reinforced concrete has shown promise as a composite, and has proven to possess excellent ductility and superior strength (Tripathi, M. et al., 2024). In closed-loop processes, once shredded, the textile is then spun into new yarns. A key limitation of mechanical closed-loop recycling is that the shredding process shortens fibre length, which often necessitates blending recycled fibres with virgin fibres to maintain the strength and quality required for apparel production (Le, 2018). Closed-loop recycling also necessitates the use of single material textiles (U.S. Government Accountability Office, 2024). The resulting fibre can then be used in the production of garments or other textiles.

Mechanical recycling has the following strengths:

- Low energy requirements compared to chemical recycling.
- Readily available technology and lower capital investment.
- Applicable to most fabric types, including fibre blends (e.g., polycotton).
- Suitable for converting end-of-life textiles into lower-value applications like rags, insulation, or composite materials.

Limitations of mechanical recycling are as follows:

- fibre quality degradation limits the potential for closed-loop recycling (e.g., turning old clothing into new clothing) and the number of times fibres can be processed.
- Mechanical closed-loop recycling is not applicable to fibre blends.
- Mechanical closed-loop recycling reduces fibre length with each cycle, requiring the addition of virgin fibres to maintain material strength and quality.
- Recycled polyester fibre is 30% more expensive than virgin fibre.

Mechanical recycling lends itself particularly well to open-loop techniques for integrating textile waste into non-traditional applications, such as construction materials (e.g., adding textile fibres to building products; production of acoustic insulation). While these techniques do not solve the problem of textile waste, they offer solutions to keep materials out of landfill while more circular solutions are being tested and scaled. They also have the ability to handle large volumes of textile waste and require less initial capital investment than chemical recycling.

Companies engaged in small-scale mechanical recycling of end-of-life textiles worldwide are numerous. On the west coast of Canada, in British Columbia, apparel brand Anian focuses mainly on recycling wool in a mechanical, closed-loop process to produce the fabrics with which to create their sustainable collections for men and women (Anian, n.d.). It is important to note that Anian sources their recycled wool from Italy (Anian, n.d.). Also in British Columbia, General Recycled Ltd. specializes in the closed-loop recycling of non-biodegradable aramid and para-aramid textiles, transforming used flame-resistant garments into reusable fibres, yarns, and certified technical fabrics (General Recycled, n.d.). Australia's UPPAREL eliminates the landfilling of textiles by mechanically recycling them in an open-loop process into their UPtex product. UPtex is a 100% recycled and fully recyclable material made entirely from recovered textiles. This innovative product aims to replace conventional materials, such as cardboard and plastics, in various applications, including packaging, signage, and homewares. UPtex is designed for complete circularity, allowing products made from it to be reprocessed repeatedly without quality degradation (UPPAREL, n.d.). Another company, Estonian-based Greenful, manufactures eco-friendly construction materials utilizing textile waste, including wall panels, decorative boards, structural insulated panels, and paving bricks. Notably, up to 70% of a house can be built using Greenful products, each reducing atmospheric CO2 by 300 tons. (Greenful, n.d.).

Examples of Mechanical Textile Recycling Companies Worldwide

Company	Country	Region	Year Established	Fibres Processed	Recycling Process	EPR Policy for Textiles in Region of Operation?
Anián	Canada	British Columbia	2013	Wool	Closed-Loop	N
Blue Jeans Go Green	USA	Various	2006	Cotton (Denim)	Open-Loop	N
Frankenhuis (Boer Group)	The Netherlands	Various	1992	Various	Open-Loop	Y
General Recycled Ltd.	Canada	British Columbia	Unknown	Aramids (Flame-resistant technical workwear)	Closed-Loop	N
Greenful	Estonia	Tallinn	Unknown	Various	Open-Loop	Y
Material Return	USA	North Carolina	Unknown	Various	Closed-Loop	N
Recover Textile Systems	Spain	Banyeres de Mariola	1947	Cotton	Closed-Loop	Y
UPPAREL	Australia	Victoria	Unknown	Various	Open-Loop	N

Table 7: Examples of mechanical textile recycling companies worldwide

5.2.2 **Chemical Recycling**

Chemical recycling involves breaking down textile fibres into their fundamental building blocks, which can then be reassembled into new fibres without quality loss (Ndagano, Cahill, Smullen, Gaughran, & Kelleher, 2025). It allows for the recycling of synthetic and blended fibres, and supports closed-loop systems. Three key chemical recycling processes are currently used. First, dissolution uses solvents to separate a main fibre, often cotton or cellulose, from other elements and reduce them to a liquid pulp that can be remade into man made cellulosic fibres (FTA, 2021). The second process is depolymerization, which focuses on breaking down the bonds in synthetic fibres (FTA, 2021). Lastly, hydrothermal processing uses water and chemicals to separate and recover fibres, and can be used in the processing of fibre-blends (FTA, 2021).

Strengths of chemical recycling include:

- Enables closed-loop recycling for both natural and synthetic fibres.
- Produces higher-quality recycled fibres suitable for apparel and textile applications.

Limitations of chemical recycling are as follows:

- Higher cost and resource requirements.
- Requires significant investment in specialized infrastructure.

In summary, compared with mechanical recycling, chemical recycling offers higher-value outputs and closed-loop opportunities, but faces technical and economic barriers. Effective sorting is critical to both recycling methods, as contaminated or mixed-materials reduce recycling efficiency and product quality (FTA, 2021). Furthermore, while fibre-to-fibre recycling is advancing, it often results in downcycling, reducing fibre quality over time (Ndagano et al., 2025). However, recent advancements have significantly enhanced the chemical recycling of blended textiles, particularly polycotton, a common blend of cotton and polyester. Traditional recycling methods have struggled with such blends due to the differing properties of natural and synthetic fibres.

One notable development involves the use of super-concentrated hydrochloric acid at room temperature to selectively hydrolyze the cotton component in polycotton fabrics. This method effectively converts cotton into glucose, a valuable feedstock for biobased products like renewable plastics. The remaining polyester fibres are left intact and can be reprocessed using existing polyester recycling techniques (Leenders et al., 2025).

Another promising technique employs a water coupling strategy to co-hydrolyze polyester and cotton blends. This process breaks down both components into their monomers and platform chemicals, facilitating the complete recycling of blended fabrics. Such methods are pivotal in overcoming the limitations of traditional mechanical recycling, which reduces the quality and value of the feedstock fibre (Zhao et al., 2024).

There are an increasing number of companies chemically recycling textile waste around the world. For example, Circ, a certified B-Corp headquartered in the state of Virginia, US, has developed a proprietary hydrothermal process that effectively separates and recovers both polyester and cotton fibres from polycotton blends, enabling their reuse in new textiles (Circ, n.d.). Still in the US, this time in Washington, Evrnu is an advanced material innovation company focused on transforming textile waste into high-quality, recyclable fibres. Their proprietary technology, NuCycl®, converts cotton-rich textile waste into new fibres that can be regenerated multiple times without quality degradation (Evrnu, n.d.). In Los Angeles, California, US, Ambercycle converts post-consumer polyester textile waste into regenerated fibres, branded as cycora®, which match the quality of virgin polyester (Ambercycle, n.d.). A French company, Technip Energies subsidiary Reju, located in Paris, France, has developed a polyester made entirely from textile waste that would otherwise be discarded, ensuring a fully traceable, textile-to-textile recycling process (Reju, n.d.). Lenzing AG, headquartered in Lenzing, Austria, is a global leader in producing wood-based cellulosic fibres. Through its proprietary REFIBRA™ technology, Lenzing produces fibres by incorporating cotton textile waste, including both pre-and post-consumer materials. This process involves transforming collected textile waste into pulp, which is then used to create new lyocell and viscose fibres (Lenzing, n.d.). In Table 8 below, the sample of chemical textile recycling companies worldwide are shown with their country and region of operation, the year they were established, the fibres processed, the type of recycling process employed and whether or not there is an EPR policy for textiles in place in the region of operation.

Examples of Chemical Textile Recycling Companies Worldwide

Company	Country	Region	Year Established	Fibres Processed	Recycling Process	EPR Policy for Textiles in Region of Operation?
Ambercycle	USA	California	Unknown	Polyester	Closed-Loop	Y
Circ	USA	Virginia	2011	Polyester, Cotton (from polycotton blends)	Closed-Loop	N
Eastman Chemical Company	USA	Tennessee	1920	Polyester	Open-Loop	N
Econyl (Aquafil)	Italy	Arco	1965	Nylon	Closed-Loop	Y
Evrnu	USA	Washington	Unknown	Cotton	Closed-Loop	N
Infinited fibre Company	Finland	Espoo	2016	Cotton	Closed-Loop	Y
Lenzing AG	Austria	Lenzing	1938	Cotton, Lyocell, Viscose	Closed-Loop	Y
Loop Industries	Canada	Quebec	Unknown	Polyester	Closed-Loop	N
Reju	France	Paris	Unknown	Polyester	Closed-Loop	Y
Samsara Eco	Australia	Canberra	2021	Polyester, Nylon 6,6	Closed-Loop	N
Worn Again	Switzerland	Winterthur	2005	Polyester, Cotton, Polycotton blends	Closed-Loop	Y

Table 8: Examples of chemical textile recycling companies worldwide

5.2.3 **Biochemical Recycling**

Biochemical recycling, an emerging process, uses enzymes to reduce end-of-life polyester textiles to monomers which can then be used in the production of glucose and bioethanol (Ndagano et al., 2025; Wang, Wu, Zhao, & Shen, 2023). The biochemical process is energy-efficient, environmentally friendly, and effective for separating blended textile waste like polyester-cotton blends (Hkrita, n.d.). In general, these processes require low energy input, rely on mild and environmentally friendly solvents and chemicals, and are based on renewable resources rather than fossil-derived carbon (Wang, Wu, Zhao, & Shen, 2023). It is also capable of producing recycled textile fibre that is of the same quality as virgin materials (SGB Media, 2024). However, it is slower and more expensive than chemical recycling (Ndagano et al., 2025) and applies solely to natural polymers. For these reasons, commercial biochemical recycling of textiles is limited (Wang, Wu, Zhao, & Shen, 2023). However, there is one notable example of a public-facing brand partnership

with the French recycling company Carbios, who, in collaboration with well-known brands including Patagonia and Puma, created a fully recycled tee-shirt using biochemical processes (SGB Media, 2024).

5.3 Suitability of Technologies for Nova Scotia's Textile Waste Streams

Understanding the composition of textile waste is critical for developing effective recycling strategies. The fibre content of discarded textiles significantly influences their recyclability, with natural fibres, synthetic fibres, and fibre blends each requiring distinct processing technologies (FTA, 2021). Nova Scotia's waste audits provide a high-level categorization of textile waste but lack detailed fibre composition analysis. To develop a targeted recycling strategy, further studies are required to assess the province's specific fibre mix.

A national perspective underscores the challenge of inconsistent classification. The National Waste Characterization Report (ECCC, 2020) estimated that 91,553 tonnes of biodegradable textiles, primarily cotton, wool, and other natural fibres, were disposed of in Canada in 2016, accounting for 1.2% of total municipal solid waste. However, non-biodegradable textiles, primarily polyester, nylon, and acrylic, were categorized under plastics, while some other textiles were included in the rubber and leather category, making their precise contribution difficult to determine. Standardizing textile waste classifications in audits nationwide is essential to improving data accuracy and shaping effective recycling policies. NACTR has made standardized waste audit guidelines available on their website that can be used as a resource (NACTR, n.d.).

The global fibre market further contextualizes Nova Scotia's recycling needs. As of 2023, synthetic fibres accounted for approximately 67% of global textile production, with polyester alone comprising 57% (Statista, 2023). Polyester is now the most widely used fibre in textile manufacturing, surpassing cotton more than twofold (Gelles, 2023). This dominance of synthetics presents both an opportunity and a challenge: while synthetic textiles do not biodegrade, requiring long term waste management solutions, natural textiles contribute to methane emissions in landfills.

Addressing these waste streams effectively requires a multi-pronged approach that considers three key components: sorting, processing, and feedstock applications.

1. Sorting: Accurate fibre identification and separation are foundational for effective recycling. Advanced sorting technologies, such as NIR spectroscopy, could improve material recovery by distinguishing between natural, synthetic, and blended textiles. Without precise sorting, the efficiency of potential downstream recycling processes is significantly reduced.

2. Processing: The recycling method must align with the fibre composition of the waste stream.
    - Mechanical Recycling (Open-Loop): Suitable for multi-fibre streams including polycotton and other blends. Potential applications include converting these textiles into insulation, padding, or industrial rags.
    - Chemical Recycling (closed-loop): Critical for processing blended fibres and ensuring higher-value closed-loop recycling. Partnerships with emerging chemical recycling companies could help pilot this technology in Nova Scotia.

3. Feedstock Applications: Beyond traditional recycling pathways, repurposing textile waste into non-apparel applications can expand market opportunities:
    - Construction Materials: Recycled textiles can be integrated into insulation, acoustic panels, and composite materials, providing sustainable alternatives for the building industry (FTA, 2023).
    - Nonwoven Products: Waste textiles can be processed into felt and used for filtration textiles, wipes, and disposable hygiene products, offering an additional end-market for difficult-to-recycle fibres (FTA, 2021).

5.4 Infrastructure Needs

Nova Scotia currently lacks the large-scale infrastructure necessary to support post-consumer textile recycling across the full value chain. While some sorting and processing facilities exist within the province, these operations are primarily focused on reuse, ragging, and the export of secondhand goods, rather than advanced recycling or fibre recovery. Importantly, these facilities are typically only involved in the first and second sorts, also known as resale assessment and commodity grading, rather than the third sort, which is fibre-specific sorting for recycling. Infrastructure to support high-value recycling applications, such as converting post-consumer textiles into feedstock for new garments or industrial materials, is minimal. As a result, most discarded textiles are either

exported or sent to landfill, with limited integration into circular systems.

This infrastructure gap extends beyond Nova Scotia to the national level. Canada does not yet operate a significant, centralized textile recycling system, and the few domestic initiatives that exist are often limited in scale or focused on specific material streams (FTA, 2021). For example, Debrand, sorts between 1 and 1.5 million pounds (680 tonnes) of textiles annually, and the materials are shipped to recycling facilities located in the US, due to the lack of domestic capacity (Debrand, n.d.; FTA, 2021). Debrand's operations touch on the third sort, offering one of the few examples of fibre-specific sorting occurring within Canada.

Some Canadian organizations are exploring niche textile recycling applications. For instance, General Recycled in British Columbia specializes in recycling industrial meta and para-aramid workwear (D. Kasper, personal communication, November 18, 2024; General Recycled, n.d.). In Quebec, Loop Industries converts waste PET plastics and all polyester fibre waste including end-of-life polyester garments into pellets, which can be reused in packaging, bottles, and new textiles (FTA, 2021; Loop Industries, n.d.). While promising, these efforts remain limited in scope and do not yet provide a national-scale solution for post-consumer textile recycling or feedstock production.

According to Amelia Eleiter, CEO and Co-Founder of Debrand, most pre-consumer clothing that cannot be reused is typically downcycled, a process that involves shredding or cutting textiles before repurposing them into lower-value products such as insulation, padding, or acoustic barriers This long-standing practice extends the lifespan of these materials while reducing the demand for virgin fibres in the production of such products (A. Eleiter, personal communication, November 19, 2024). Similarly, FTA (2021) emphasizes that, given the emerging nature of the industry in Canada, mechanical recycling remains the most viable option for textile waste management. Establishing mechanical textile recycling in Nova Scotia will require targeted investments and partnerships:

- **Logistics Systems:** Improving collection and transportation systems to ensure steady feedstock supply to recycling facilities. Collaboration with charities, municipalities, and private sector collectors will be essential. A reliable logistics network is a key consideration, as it serves as the grease that keeps the wheels of the recycling system moving, ensuring that materials flow consistently and efficiently from collection to processing without costly delays or disruptions.
- **Sorting Facilities:** Developing advanced sorting facilities that combine human expertise with optical or AI-based technologies to identify fibre types and separate textiles by material composition is essential. These facilities would be responsible for performing the third sort, fibre-specific sorting for recycling, which is currently not being carried out at scale in Nova Scotia. Collaboration with existing sorting systems, such as those used by large thrift operations like Value Village or The Salvation Army Thrift Store, should also be considered. However, such partnerships must go beyond initial resale and grading functions and build capacity for true recycling-oriented sortation.
- **Recycling Facilities:** Establishing a local textile recycling plant designed with flexibility in mind, capable of integrating new technologies over time. Initially, it would incorporate open-loop mechanical recycling technologies for short term use, with the potential to transition to closed-loop chemical recycling technologies in the long term.

To complement a textile EPR program and make the commissioning of a recycling facility more feasible, it is recommended that the province of Nova Scotia consider making use of inactive seafood, pulp, or other processing facilities in the region. For example, the Pictou Pulp Mill has remained idle since its closure in 2020 (CBC News, 2025) as has Riverside Lobster International (Meteghan, Digby County, permanently closed in 2024) (Johnson, 2024a), among others. These facilities can be adapted to textile recycling hubs due to their large footprint, commercial zoning, regional significance, and logistical accessibility. Furthermore, there could be synergies between recommissioning these facilities to mechanically process both waste textiles and fishing nets, many of which are composed of plastic nylon fibres (Plastic Soup, 2021). This approach also offers significant benefits to communities, particularly those facing economic challenges due to plant closures, by creating opportunities for job creation and fostering economic diversification.

6. Market Analysis

6.1 Identification of Opportunities for Recycled Feedstock

Recycling textiles and developing markets for the resulting feedstock are crucial to fostering a circular economy and minimizing landfill waste. Recycled textile feedstock has various potential applications, from downcycling to fibre-to-fibre recycling for both industrial and consumer products. This section explores key markets, product categories, and economic opportunities associated with recycled textiles, highlighting the potential for innovation and growth in this sector.

As recycling technologies advance, the potential range of applications is expected to expand, creating new market opportunities across the construction, automotive, and textile industries (Tripathi et al., 2024). **Table 9** summarizes the product categories and methods of textile recycling along with some relevant product examples. As advancements in recycling technologies continue, the range of industries benefiting from recycled textiles is expected to expand, driving further innovation in material recovery and reuse.

Product Category	Examples of Products	Primary Recycling Method
Home and Industrial Applications	Carpets, carpet padding, upholstery, bedding, insulation, rags, automotive insulation and padding	Mechanical (Downcycling)
Apparel Industry	New clothing made from fibre-to-fibre recycled polyester	Chemical (Fibre-to-Fibre)
Building and Construction	Acoustic panels, thermal insulation, composite materials	Mechanical (Downcycling)
Non-woven Products	Filtration textiles, wipes, disposable hygiene products	Mechanical (Fibre-to-Fibre)

Table 9: Product categories and methods of textile recycling

Industry experts emphasize that improving sorting technologies, building stronger collaborations, and rethinking product design are critical to unlocking the potential of recycled textile feedstock. Dr. Joanne Brasch, Director of Outreach and Advocacy at the CPSC, underscores the essential role of fibre-sorting technologies in scaling textile recycling, particularly in addressing contamination from blended fibres and non-textile materials (J. Brasch, personal communication, November 20, 2024). Similarly, Amelia Eleiter highlights the growing demand from brands for pre-processed, high-quality feedstock and stresses the need for regional sorting hubs that can efficiently process and aggregate waste. This demand is being driven by EPR policies and ambitious sustainability goals, which are pushing companies to integrate more recycled content into their products. (A. Eleiter, personal communication, November 19, 2024).

At the same time, collaboration across the value chain is emerging as a key enabler of circularity. Bethell points to recent partnerships between recyclers and major brands like Coach and Wrangler, which help stabilize demand for recycled fibres and demonstrate the market potential of fibre-to-fibre recycling (S. Bethell, personal communication, November 20, 2024; Velasquez, 2025). Representatives from Loop Industries echoed this view, saying that public-facing collaborations with brands are essential to alleviate the apparel industry's concerns around the ability of textile recycling to work at scale (Anonymous, personal communication, March 6, 2025). However, as Genia Mineeva, founder of BEEN London, notes, these efforts must be complemented by improved product design. She advocates for greater transparency in sourcing and garments designed with circularity in mind to reduce contamination and facilitate disassembly at end-of-life (G. Mineeva, personal communication, December 12, 2024). Collectively, these insights highlight the need for better sorting technologies, localized and collaborative infrastructure, and intentional design to create a more stable and efficient supply of recycled textile feedstock.

6.2 Barriers to Entry

While there is growing momentum toward textile circularity, several significant barriers hinder the widespread adoption of end-of-life textile recycling in Nova Scotia. This section outlines key obstacles identified through interviews with industry experts, including regulatory and policy gaps, lack of demand for recycled feedstock, high processing costs, inadequate sorting and recycling infrastructure, contamination issues, market dynamics that favour virgin materials, labour costs and domestic processing capacity, consumer behaviour, lack of investment in innovation, uncoordinated policies and stakeholder tensions, and the need for automation in sorting.

1. **Regulatory and Policy Gaps:** There is currently no EPR framework for textiles in Nova Scotia, meaning that brands are not financially responsible for managing their textile waste. Bob Kenney stressed that stronger policies, such as EPR and landfill bans, are needed to drive investment in recycling infrastructure and ensure that textiles are diverted from disposal. "A ban by a regional government doesn't necessarily set out the framework for demand," Kenney warned, underscoring that without simultaneous investment in infrastructure and market development, bans could create more problems than solutions (B. Kenney, personal communication, November 29, 2024).

2. **Lack of Demand for Recycled Feedstock:** Even if end-of-life textile recycling infrastructure improves, there is no guaranteed demand for recycled materials. Karla Magruder of Accelerating Circularity pointed out that brands are not compelled to use recycled fibres unless policies, such as recycled content mandates or tax incentives, or internal organizational commitments, push them in that direction (K. Magruder, personal communication, March 7, 2025). Andrew Philopoulos from Circular Materials also noted that the absence of an established demand for recycled textiles makes it difficult for recyclers to justify large-scale investments (A. Philopoulos, personal communication, December 12, 2024). Without consistent corporate commitments to using recycled fibres, recycling businesses struggle to scale operations, perpetuating the reliance on landfill disposal.

3. **High Processing Costs:** One of the primary barriers to end-of-life textile recycling is the high cost of processing used materials compared to virgin fibres. Chemical recycling processes, in particular, require significant infrastructure investments and energy inputs, making them cost-prohibitive for many businesses. Charles Rozansky, owner of North American Wool Stock, highlighted that logistics costs, especially shipping, are a major obstacle (C. Rozansky, personal communication, November 26, 2024).

   Additionally, textile recyclers struggle to achieve price parity with virgin materials. Marisa Adler, Senior Consultant with Resource Recycling Systems, pointed out that while demand for recycled textiles is growing, brands are often reluctant to pay a premium for recycled fibres. She noted that, without policy interventions or subsidies, it is difficult for recyclers to compete with low-cost virgin synthetics (M. Adler, personal communication, December 9, 2024). A representative from Loop Industries echoed this concern, noting that scaling chemical recycling requires significant upfront investments and that brands remain hesitant to fully commit to recycled content without proof that it can produce the quality of fibre required at the necessary scale (Anonymous, personal communication, March 6, 2025).

4. **Lack of Sorting and Recycling Infrastructure:** Nova Scotia currently lacks dedicated end-of-life textile sorting and processing facilities, which limits access to quality feedstock for recycling (Adler, 2024). Dr. Joanne Brasch emphasized that fibre-sorting technologies are essential for scaling fibre-to-fibre recycling, yet many regions still rely on manual sorting methods, which are costly and inefficient (J. Brasch, personal communication, November 20, 2024). Furthermore, there are no large-scale mechanical or chemical textile recycling facilities in Nova Scotia. Textile waste is typically either exported or sent to landfill, due to insufficient local processing capacity and associated lack of demand for recycled feedstock. Laura Chenoweth, a Nova Scotia-based circular economy SME, stressed that the province is missing a centralized textile recycling system, and collection and processing is inconsistent across municipalities. "HRM spends $500K on landfill tipping fees for domestic textile disposal, and this money could be redirected toward textile collection pilots," she suggested (L. Chenoweth, personal communication, November 22, 2024).

5. **Contamination Issues:** Post-consumer textiles often contain blended fibres, dyes, elastane, coatings, and other non-recyclable materials, making fibre recovery difficult. (Cheminfo Services Inc., 2022). Blended textiles, in particular, remain a

technical challenge for innovators. While emerging chemical recycling technologies can process some fibre blends, these solutions are not yet widely available in Canada. Kelly Drennan, Executive Director of FTA, pointed out that "many recyclers in Canada are under NDAs, which makes it difficult to share information about feedstock requirements and contamination solutions." Sorting and preprocessing for fibre-to-fibre recycling remain underdeveloped, and without better data on fibre composition in post-consumer waste, innovators struggle to refine their processes (K. Drennan, personal communication, March 5, 2025).

6. **Market Supply and Demand for Virgin Materials:** The textile industry continues to favour virgin materials due to established supply chains and cost advantages (ECCC, 2024a). In the "Materials Market Report 2023," Textile Exchange (2023) notes that in 2022, the global fibre market consisted of less than 1% recycled textiles. Many brands hesitate to integrate recycled content due to concerns about fibre quality, durability, and availability. While demand for recycled polyester is increasing, there are limited commercial applications for mechanically and chemically recycled natural fibres (FTA, 2021). This challenge is exacerbated by the soaring demand for polyester, which has led to a decline in cotton supply, as synthetic fibres have overtaken cotton in fashion production (Nemiroff, 2025). Without a stable, high-volume market for recycled fibres, many textile recycling businesses struggle to scale.

7. **Labour Costs and Lack of Domestic Processing Capacity:** Another major barrier is the high cost of labour in North America, which makes end-of-life textile sorting and recycling operations expensive compared to countries with established low-cost processing industries. Navi Sahsi emphasized that mechanical recycling and rework operations are much cheaper overseas, making it difficult for Canadian recyclers to compete (N. Sahsi, personal communication, March 6, 2025). A representative from Loop Industries noted that while polymerization facilities for chemical recycling are limited in Canada, their proprietary Infinite Loop™ design integrates polymerization within the recycling system. Therefore, if Loop were to scale up operations domestically, polymerization would be included in the Canadian facility, avoiding the need to ship materials (e.g., pellets) abroad for further processing (Anonymous, personal communication, May 7, 2025).

8. **Consumer Behaviour and Misconceptions About Textile Recycling:** Many consumers are unaware of the textile waste crisis, leading to low participation rates in textile collection programs. Bob Kenney, formerly of Nova Scotia's Department of Environment and Climate Change, stated that many consumers lack knowledge about available recycling options, making education campaigns essential (B. Kenney, personal communication, November 29, 2024). Marisa Adler pointed out that clothing disposal habits are deeply ingrained, and consumers do not always recognize that options exist beyond landfill (M. Adler, personal communication, December 9, 2024). Tonny Colyn from The Salvation Army Thrift Store added that many consumers donate items they believe are reusable when they are not, contributing to contamination issues in second-hand and recycling markets (T. Colyn, personal communication, December 9, 2024).

9. **Lack of Investment in Innovation and R&D:** Textile-to-construction applications, such as using shredded textiles in concrete blocks, insulation, and composite materials, could be viable solutions, but there is little funding for R&D to explore these applications. Jamie Burns from the Municipal Group stressed that while there is potential for using textile waste in construction, there is no clear regulatory framework or financial incentive to encourage investment in such initiatives (J. Burns, personal communication, November 25, 2024). Similarly, Steven Bethell noted that Canada lacks financial support for textile recyclers, startups, and pilot projects, slowing innovation (S. Bethell, personal communication, November 20, 2024).

10. **Uncoordinated Policies and Stakeholder Tensions:** Policy inconsistencies between federal, provincial, and municipal governments further complicate textile circularity efforts. Kelly Drennan stated, "We need harmonized policy frameworks across provinces and territories, alongside clear consensus that textiles are a priority material stream for circular economy action." (K. Drennan, personal communication, May 7, 2025).

11. **Need for Automation in Sorting:** A significant bottleneck in end-of-life textile recycling is the reliance on manual sorting processes, which are costly, inefficient, and labor-intensive. Amelia Eleiter explained that textile sorting is still largely done by hand, making it difficult to scale operations (A. Eleiter, personal communication, November 19, 2024).

7. Risk Assessment

As Nova Scotia considers policy interventions for textile waste, it is essential to evaluate the risks associated with both inaction and policy implementation. This section outlines key risks related to market dynamics, operational feasibility, environmental concerns, EPR adoption, and a number of other considerations. Addressing these risks is crucial to ensuring that Nova Scotia's textile waste management initiatives do not create unintended consequences or economic burdens.

7.1 Risk of Doing Nothing

Failing to act on textile waste management exposes Nova Scotia to serious external pressures that could force reactive and costly interventions in the near future. Global second-hand and recycled textile markets are undergoing significant contraction due to rising trade barriers, shrinking demand, and growing international scrutiny over textile waste exports. Several countries are imposing tariffs, import restrictions, and outright bans on incoming second-hand clothing, and international media attention is increasingly condemning the export of low-value textile waste. As more markets close their doors, businesses that rely on exporting overflow textiles will face declining revenues and eventual collapse. Without proactive development of local solutions, Nova Scotia risks being caught off guard as export outlets vanish, forcing an urgent and expensive expansion of landfill capacity and dramatically increasing pressure on already burdened municipal waste systems. Inaction today will result in limited options tomorrow, with fewer policy tools and higher environmental and economic costs.

7.2 Operational Risks

Establishing a local end-of-life textile recycling system comes with operational risks, including potential supply chain disruptions and fluctuating demand. Reliable and sufficient feedstock is required to sustain textile recycling operations. Inconsistent collection rates, contamination of materials, and quality control issues may impact the economic viability of a recycling facility. Furthermore, the market for recycled fibres is highly dependent on domestic policy, regulations, and cost competitiveness against virgin materials. If demand for recycled textiles remains low, investments in recycling infrastructure may struggle to generate returns.

7.3 Risks Associated with Curbside and Bin Collection of Textiles

Curbside and bin textile collection has been piloted in some Canadian municipalities, but it presents risks, including logistical challenges and contamination. As demonstrated by Colchester County, NS and Markham, ON, municipalities would need to invest in dedicated or co-branded collection bins, sorting processes, and partnerships with collectors, which can be costly and require behavioural shifts among residents. There is also the risk of contamination of textiles, as textiles collected at the curb are at risk of contamination with non-textile waste, reducing their reusability and recyclability. Finally, as noted in the case with Colchester County, EPR programs for items other than textiles may pose a threat to the curbside collection program since those program operators will not want to take items (textiles) that are not part of their program.

Lessons Learned:
Colchester County, Nova Scotia & Markham, Ontario

Comparing Colchester County, NS and Markham, ON highlights trade-offs in textile collection strategies. Colchester's curbside model benefitted from the convenience of curbside collection but carried contamination risks if textiles become soiled during collection, potentially reducing reuse opportunities (Anonymous, personal communication, November 25, 2024). Markham's dedicated bin model minimizes contamination by separating textiles from general waste streams and strengthens community trust by ensuring that only registered charities operate bins. These cases underscore the importance of matching infrastructure choices with local conditions, supporting strong public engagement, and designing programs with flexibility to adapt to future EPR frameworks.

7.4 Risks Associated with EPR Implementation

While textile EPR offers many benefits, poorly structured policies may lead to unintended consequences, including increased collection without processing infrastructure, which can result in negative impacts on charitable organizations. A sudden surge in textile collection under EPR could overwhelm existing sorting and reuse capacity, leading to landfilling or incineration instead of high-value reuse. Charities currently play a major role in diverting textiles from landfill. If EPR programs centralize collection and restrict donations to approved entities, it could undermine funding sources for charitable reuse operations (NACTR, 2023a). To mitigate these risks, a well-structured textile EPR policy can mandate investment in local sorting and recycling facilities, provide financial support to existing textile recovery networks, and ensure fair market participation for charities and second-hand businesses (WRAP, 2024). Another concern is greenwashing and false sustainability claims. Without strong oversight, some brands may claim participation in EPR programs without actually improving the sustainability of their product lifecycle, misleading consumers about the effectiveness of textile diversion initiatives (NACTR, 2023a). Finally, if EPR fees are too high, businesses may increase product prices, potentially shifting financial burdens to consumers.

7.5 Risks of a Landfill Ban on Textiles

A textile landfill ban could be a strong incentive for textile diversion, but it also carries risks of increased illegal dumping and limited processing capacity. Without accessible alternatives, some businesses and residents may dispose of textiles improperly. Moreover, if recycling and reuse infrastructure is not expanded before implementing a ban, landfill diversion targets may not be met, leading to stockpiling or disposal in neighbouring regions.

7.6 Market Risks

Even if local recycling infrastructure and feedstock demand is developed, the long term viability of textile circularity efforts will be challenged by unstable market dynamics. The end markets for recycled textiles are highly volatile, with recycled fibres often struggling to compete with virgin materials on price, quality, and consistency. Many manufacturers still prefer cheaper virgin fibres, and fluctuations in global demand for recycled materials mean that markets can rapidly collapse without warning. Nova Scotia's dependence on international buyers for both second-hand textiles and recycled feedstock leaves its system vulnerable to external shocks such as trade disputes, tariffs, and geopolitical instability. Without a strong and stable domestic market for recycled textile products, there is a risk that even successfully recovered materials will have no viable outlet, undermining the financial sustainability of recycling initiatives.

7.7 Environmental Risks

Without proper safeguards, end-of-life textile recycling initiatives could introduce new environmental risks, including high energy consumption and microfibre pollution. Some textile recycling processes, particularly chemical recycling, require significant energy inputs and may not always result in net environmental benefits. Another concern is that processing synthetic textiles can generate microplastics, which pose risks to water systems and ecosystems. Wastewater filtration and treatment is important to consider when designing a textile recycling process.

7.8 Social and Equity Risks

Second-hand clothing markets provide affordable apparel for lower-income households. If textile EPR programs or landfill bans shift textiles away from charity-based reuse systems to centralized EPR collection models, this could reduce access to affordable clothing for vulnerable populations (NACTR, 2023a). There are also concerns about worker conditions in textile recycling. Some textile recycling methods (especially manual sorting) rely on low-wage labour, and there is a risk of exploiting workers if proper labour standards are not enforced (United Nations Environment Programme, 2022).

7.9 Financial and Investment Risks

Nova Scotia lacks large-scale end-of-life textile sorting and recycling facilities and there are high upfront costs for infrastructure development to support them. Developing these facilities requires significant capital investment, and returns on investment could be slow if demand for recycled fibres remains low (WRAP, 2024). Moreover, unlike waste categories such as electronics and packaging, textile waste diversion currently lacks strong funding mechanisms and EPR in Canada. EPR schemes require significant upfront investments from producers, which could lead to pushback from industry

stakeholders (Cheminfo Services, 2022). This means that, if market demand for recycled fibres does not grow, newly built sorting and recycling facilities may become underutilized, leading to financial losses for both private and public investors (ACT UK, 2023).

7.10 Technological Risks

Many textile recycling solutions, particularly chemical recycling for blended fibres, are still in early-stage development and are not widely available in Canada (FTA, 2021). With respect to sorting, automated sorting technology is not yet widely adopted for textiles in Canada. Current sorting relies heavily on manual labour, making it costly and labour-intensive (WRAP, 2024).

7.11 Legal and Policy Risks

Regulatory misalignment is a concern for textile recycling. Textile waste management policies in Canada vary by province, and there is currently no national EPR framework for textiles. If EPR policies are inconsistent across provinces, producers may resist compliance or exploit regulatory loopholes (Cheminfo Services, 2022). For EPR to be an effective tool in driving textile circularity, efforts must be made to harmonize regulatory approaches across jurisdictions, ensuring clear expectations for producers and a level playing field for all stakeholders (K. Drennan, personal communication, March 5, 2025).

7.12 Consumer Behaviour Risks

Low participation in collection programs is a concern for textile diversion. Public awareness and participation are critical to the success of textile EPR and recycling initiatives. If consumers do not separate textiles from general waste or do not understand how to dispose of textiles properly, collection programs may fail to achieve expected diversion rates (FTA, 2021). Consistency in collection systems, labelling, and messaging across jurisdictions is essential to build public trust and make participation easier, helping to ensure that consumers develop the correct disposal habits over time.

8. Stakeholder Analysis

Engagement with stakeholders has been an integral component of the TTNS Phase I project and will be critical moving forward into Phase II. Key stakeholders include government agencies and organizations responsible for waste management and circular economy initiatives, recycling and waste management companies operating in the private sector, non-retail nonprofit organizations with environmental or social missions that are served by textile diversion, textile manufacturers and brands utilizing recycled materials, research and advocacy groups doing work in sustainable fashion, and second-hand retailers or resellers, both for-profit and charity, involved in textile collection and redistribution. Other groups include MSIs and textile sorters and graders. This stakeholder analysis identifies the level of interest, influence, and potential contributions of key stakeholders in advancing textile recycling and circularity in Nova Scotia.

Stakeholder Group	Level of Interest	Level of Influence	Role in Textile Recycling	Key Concerns and Challenges
Government Agencies	High	High	Policy development, regulation, funding	Policy gaps, lack of funding, enforcement challenges
Recycling and Waste Management Companies	High	Medium	Collection, sorting, recycling infrastructure	High costs of textile recycling, lack of stable feedstock, contamination issues
Nonprofit Organizations (Non-retail)	High	Medium	Advocacy, research, funding	Need for stable funding, challenges in policy adoption, public engagement
Textile Manufacturers and Brands	Medium	High	Product design, circular economy innovations	Cost of sustainable materials, regulatory uncertainty, lack of incentives
Research and Advocacy Groups	High	Low-Medium	Policy recommendations, public awareness	Lack of public engagement, difficulty securing funding
Second-hand Retailers and Resellers	Medium-High	Medium	Donation programs, resale and reuse of textiles, sorting for wholesale, diversion from landfill	Declining resale value, impact of EPR on business models, operational costs
Sorters, Graders, and/or Exporters	Low	Medium	Bulk textile collection, export, fibre recovery	Dependence on international markets, declining demand for second-hand textiles
MSIs	Medium	Medium	Cross-sector collaboration, standard setting	Coordination across sectors, policy alignment challenges

Table 10: Potential stakeholder contributions to advancement of textile circularity in Nova Scotia

Stakeholder discussions revealed a strong interest in setting the stage to prepare for expanding textile recycling infrastructure in Nova Scotia. Charitable organizations, such as thrift stores and donation centers, expressed concerns over the increasing volume of unsellable textiles and the lack of sustainable disposal options, as well as the need for investment in sorting technology. Government representatives highlighted the importance of EPR and policy reform in supporting textile diversion efforts, as well as education campaigns to bolster public awareness.

Engaging with hard-to-reach private sector stakeholders, such as Guy's Frenchys, Savers Value Village and exporters, downcyclers, sorters, and graders associated with the Secondary Materials and Recycled Textiles Association (SMART), proved challenging. These entities play a crucial role in the resale and export of used textiles, yet their limited transparency and reluctance to disclose supply chain information pose obstacles to collaboration. Future engagement strategies must focus on demonstrating the economic and regulatory benefits of participating in a structured textile recycling initiative.

Each stakeholder group has unique strengths and challenges in advancing textile circularity in Nova Scotia. Government agencies, nonprofits, and industry leaders must work collaboratively to develop policy solutions, scale recycling infrastructure, and engage the public in sustainable textile management. Through targeted stakeholder engagement in Phase II, Nova Scotia can establish itself as a leader in textile recycling and circular economy innovation.

9. Recommendations and Next Steps

Pathway to a Circular Textile Economy in Nova Scotia

This section outlines a phased approach to managing textile waste in Nova Scotia, categorized into short term (1-3 years), medium term (3-7 years), and long term (7+ years) strategies. Recommendations in each section are placed in order of importance. The objective is to establish a robust foundation for end-of-life textile recycling, gradually scale infrastructure and policy frameworks, and ultimately implement an EPR program.

9.1 Short Term (1-3 Years): Laying the Groundwork for Textile Diversion

In the short term, Nova Scotia can implement low-cost, high-impact measures that improve public awareness and engagement, enhance collection, and strengthen the foundation for future EPR implementation.

9.1.1 Public Awareness and Consumer Education

Educate consumers on proper donation etiquette (e.g., package end-of-life items separately from rewearable items, wash your clothing donations, do not leave items outside of donation bins to be exposed to inclement weather), reuse, and disposal options to reduce contamination and increase collection quality. Informing people about what can be donated and where, using a harmonized message across municipalities, will introduce transparency into the system. Increasing awareness at the consumer level will eliminate export of end-of-life textile waste and will ensure only rewearable items for which there is a competitive market are exported, while waste is dealt with at the local level. Collaborate with the DirectioNS Council and other stakeholders to maximize outreach. Promote sustainable fashion choices like upcycling, second-hand shopping, and repair. Highlight emerging initiatives in Nova Scotia and across Canada, such as municipal textile recycling pilots, brand-led take-back programs, and textile depot drop-offs, as examples of how infrastructure is beginning to shift to accommodate circular solutions. Showcasing these initiatives can help normalize new behaviours and build public trust in the growing textile diversion system.

Public awareness efforts should also emphasize the importance of active citizen engagement in policy advocacy. Educating the public about how to support regulatory changes, such as landfill bans, EPR legislation, and sustainable procurement standards, is critical to ensuring that textile waste reduction moves beyond individual action and becomes embedded in systemic change. In this way, public education campaigns and advocacy initiatives must work together to build collective support for policy frameworks that enable a circular textile economy.

9.1.1.1 Develop School Programs

Introduce circular economy principles in schools, encouraging students to organize community-led reuse events. The program can focus on the economic, environmental, and social benefits of extending garment lifecycles, and proper donation practices to reduce contamination in collection streams and increase quality. It can also stress the importance of repair, resale, and upcycling initiatives while inspiring and mentoring students on how to organize their own clothing swap, free market, and yard sale, while tying in charity partnerships that help the community.

9.1.1.2 Social Media/Creator Campaign - Promote the 7Rs

Leverage social media platforms and collaborate with content creators, influencers, and community leaders to promote the 7Rs of sustainable fashion: Reduce, Reuse, Repair, Repurpose, Rent, Resell, and Recycle (FTA, n.d.). These campaigns should use engaging, visual storytelling to highlight practical ways individuals can extend the life of their clothing and reduce waste. Partner with creators whose audiences align with key demographics, such as youth, students, or parents, to maximize reach and relevance. Support or amplify national and international campaigns like Secondhand September, Fashion Revolution Week, and Waste Reduction Week in Canada, using them as anchors for seasonal content. Encourage user-generated content, challenges (e.g., “30 wears” or DIY repair tutorials), and local storytelling to inspire community-level action. These efforts not only raise awareness but help normalize sustainable fashion behaviours and foster a culture of mindful consumption.

9.1.1.3 Policy Advocacy

Building on public awareness efforts, advocacy ensures that increased citizen knowledge and engagement translate into systemic policy change. Many of the recommendations outlined in this section rely on supportive policy frameworks at the municipal, provincial, and federal levels. To drive meaningful progress, organizations and individuals must actively engage in advocacy efforts that push for regulatory change. This includes responding to consultation documents released by ECCC, writing letters to elected officials, signing and circulating petitions, and participating in public forums. Advocacy can also take place online through social media campaigns, awareness-raising posts, or by supporting aligned organizations and movements. Everyday conversations with peers, colleagues, and community members are equally powerful tools for shifting public discourse. By embedding advocacy actions into broader public education initiatives, citizens can be empowered not only to change their individual behaviours, but also to push for the policies needed to support large-scale textile waste reduction. Building a collective voice around conscious consumption and textile waste reduction can help signal to policymakers that there is broad public support for action. In particular, advocacy should target policies such as sustainable procurement standards, EPR legislation, and landfill bans to lay the groundwork for systemic change.

9.1.1.4 Partnerships with Fashion Brands and Retailers

Fashion brands and retailers play a powerful role in shaping consumer behaviour and public perception. With marketing budgets that often far exceed those of governments and nonprofits, they are uniquely positioned to amplify messages around textile waste reduction and circular fashion. Building strategic partnerships with these stakeholders can significantly expand the reach and credibility of public awareness campaigns. Collaborating with brands on initiatives such as take-back programs, co-branded educational content, or in-store repair and resale services not only supports textile diversion but also helps businesses demonstrate environmental leadership. Inviting brands to the table as active partners, rather than passive targets of regulation, can ensure that messaging is aligned, industry buy-in is secured, and future policy development is informed by operational realities. These partnerships also offer an opportunity to co-create innovative solutions that integrate sustainability into the customer journey from point of sale to end-of-life.

9.1.1.5 ICI Educational Initiative

Engage organizations across the ICI sector, including spas, fitness centres, restaurants, hotels, offices, linen and laundry services, hospitals, long-term care homes, and correctional facilities, to build awareness of textile waste within their operations and supply chains. Provide sector-specific education on textile diversion opportunities, sustainable procurement practices, and reduction strategies. This may include encouraging bulk purchasing of durable, reusable linens, setting up in-house repair or reuse programs, or contracting with local textile recyclers or social enterprises. Support these efforts by sharing case studies, offering procurement policy templates, and promoting circular business models. Collaborations with industry associations can amplify impact and help integrate circular textile practices into broader sustainability or Environmental, Social, and Governance (ESG) goals. These initiatives will not only divert textiles from landfill but also help position Nova Scotia as a leader in responsible ICI sector practices.

9.1.2 Municipal Support for Textile Collection Programs

9.1.2.1 Standardize Clothing Collection Bin By-Laws

Introduce a province-wide framework for clothing donation bins to ensure greater transparency, accountability, and accessibility in textile collection. Currently, municipalities across Nova Scotia may have inconsistent or no regulations for donation bins, which can lead to confusion, misuse, or mistrust among the public. A standardized set of by-laws would provide clarity around where bins can be placed, who is responsible for them, and how often they must be maintained. It would also reduce issues such as illegal dumping, overfilled or neglected bins, and misleading branding that suggests charitable affiliations where none exist.

Such a framework would also simplify compliance for operators, particularly those working across multiple jurisdictions, while helping municipalities better monitor and manage textile diversion infrastructure. If a formal by-law approach is not feasible, municipalities should promote adherence to an established industry Code of Conduct, such as the one developed by SMART (SMART, n.d.) or NACTR (in development). These codes outline best practices related to bin maintenance, ethical labeling, and transparency in for-profit vs. nonprofit operations.

Clear bin governance enhances public trust, supports legitimate operators, and ensures that collection bins fulfill their intended purpose of diverting textiles from landfill while supporting local economies and charities. It also prevents reputational harm to both municipalities and the reuse sector by minimizing the presence of predatory or non-compliant operators.

9.1.2.2 Mandate Textile Collection in Multi-Residential Buildings

Require new build apartment buildings, condominiums, and other multi-residential housing complexes to provide designated textile collection infrastructure for residents. These types of housing often lack convenient donation or disposal options for unwanted clothing and household textiles, resulting in a higher likelihood that textiles will be discarded with general waste. Mandating on-site textile collection will make proper disposal significantly more accessible and is a critical step toward increasing diversion rates in densely populated urban areas.

To ensure successful implementation, municipalities and property managers can partner with experienced charitable or nonprofit textile collection operators, many of whom already maintain donation bin infrastructure and household pickup services, and have the logistics in place to service buildings efficiently. These partnerships can be structured to include regular pickups, clear signage, and educational materials for residents on what to donate and how to prepare textiles (e.g., clean, dry, and bagged). Property managers can also receive guidelines to help maintain cleanliness and avoid contamination in collection areas.

9.1.2.3 Expand Residential Home Pickup and Mail-in Services

Collaborate with municipalities and charitable organizations to expand textile collection infrastructure in areas with high volumes of textile waste. Some charities in Nova Scotia already offer home pickup services for clothing donations, and these programs are essential to making donation convenient and accessible, especially for residents with mobility challenges, busy schedules, or limited access to transportation. Supporting these organizations through funding or promotional assistance can help increase collection rates while reinforcing public trust in donation systems.

Charities that already have donation pickup programs can be scaled by expanding service areas or promoting them more effectively through municipal and provincial communications. In addition, helping charities establish mail-in donation services offers another accessible option, particularly for rural or remote communities where in-person donation bins or storefronts may not be available. Providing infrastructure support, such as subsidized shipping, branded mail-in kits, or partnerships with logistics providers, can reduce barriers for both donors and charities. By prioritizing support for existing charitable partners, it ensures that textile diversion initiatives are community-rooted and socially impactful.

9.1.2.4 Enhance Data on Textile Waste Stream Composition

Conduct a detailed textile waste characterization study to identify not only the volume of textiles being landfilled in Nova Scotia, but also the fibre composition of those textiles. While standard landfill audits can estimate the total weight or proportion of textile waste disposed of, they generally do not distinguish between different fibre types, such as cotton, polyester, wool, rayon, or blended fabrics. This limits the ability of policymakers and recyclers to design targeted interventions that reflect the actual material makeup of the waste stream.

Case Study:
Co-Branded Collection in the City of Markham, Ontario

In response to unregulated donation bins and rising fast fashion waste, Markham, ON, implemented a municipally branded textile collection program operated by registered charities. Charities manage bin operations and textile processing at no cost to the city, while job creation and charitable missions are supported with minimal municipal investment through facilities like the Salvation Army Distribution and Recycling Centre in Scarborough, ON (M. Dipasquale, personal communication, November 21, 2024). The city's by-law regulating textile bins, paired with public education campaigns and strategic bin placement in high-traffic areas, along with regular enforcement has kept illegal dumping minimal. Future expansions are planned through partnerships with multi-residential buildings and the exploration of sensor-equipped bins to enhance efficiency.

A more granular analysis, often referred to as a textile characterization study, would assess the specific fibre content of discarded garments and other textiles. Understanding the relative volumes of natural versus synthetic fibres, for instance, is essential for determining the viability of various recycling technologies. For example, mechanical recycling is best suited to cotton-rich feedstock, whereas chemical recycling technologies are typically required for polyester and blended fibres. Without this fibre-level insight, investment in recycling infrastructure or circular product design is likely to be inefficient or mismatched to the available materials.

In addition to informing technology selection and infrastructure planning, fibre composition data can help estimate the potential volume of recyclable feedstock available in the province, providing a clearer business case for investors, innovators, and EPR planning. It can also help shape policies around product design (e.g., favouring mono-material textiles) and procurement standards that promote recyclability.

9.1.2.5 **Establish Directives for ICI Textile Management**

Introduce provincial legislation that requires ICI organizations, particularly large-scale textile users such as hospitals, schools, hotels, correctional facilities, and long-term care homes, to develop and implement formal textile waste management policies. Requiring institutions to adopt textile waste management plans would establish accountability and drive the development of systems for donation, repair, reuse, or recycling of used textiles. This may include setting up internal collection systems, partnering with local reuse organizations, integrating end-of-life planning into procurement decisions and incorporating recycled fibres into provincial procurement policies for uniforms and other textile-based products.

Mandate that public institutions procure textiles with recycled content, where available, as part of their sustainability commitments. This can be supported through public procurement standards that favour environmentally preferable products and vendors with demonstrable circular practices. For example, schools and hospitals could be required to purchase uniforms, linens, or cleaning textiles made from mechanically or chemically recycled fibres. These procurement standards would create a market signal to manufacturers and suppliers, encouraging innovation and increasing demand for recycled-content textiles.

9.1.2.6 **Support Businesses That Keep Clothing Out of the Waste Stream**

Encourage the growth of Nova Scotia's repair and resale economy by offering financial, tax, and capacity-building incentives that reward circular behaviour and strengthen local textile reuse infrastructure. One of the most effective ways to reduce textile waste is to extend the life of clothing and household textiles through repair, resale, and upcycling, activities that not only divert materials from landfill but also create local jobs, foster entrepreneurship, and shift consumer mindsets away from fast fashion.

Offer direct incentives for consumers who choose to repair or resell their clothing rather than discard it, this could include rebates for tailoring or mending services, credits for participating in secondhand markets, or "repair vouchers" distributed through community centres or municipal programs. These incentives help normalize repair as a default option and make sustainable choices more accessible and affordable.

At the same time, support the businesses and social enterprises that provide these services. Many repair shops, tailoring businesses, resale boutiques, consignment stores, and upcycling entrepreneurs operate on thin margins. Providing targeted tax credits, grants, or low-interest loans can help them scale operations, expand outreach, and invest in equipment or staff training. Municipalities can also explore low-cost leasing opportunities for resale startups or integrate repair services into community hubs and libraries of things.

To build long term resilience in this sector, subsidize training and workforce development programs in garment repair, textile sorting, and creative upcycling. These skills are not only vital for circular textile economies, but also represent accessible employment pathways for youth, newcomers, and underemployed individuals.

Supporting the repair and resale sector has cascading benefits: it keeps valuable textiles in use, reduces demand for virgin materials, strengthens local economies, and lowers the environmental footprint of clothing consumption. It also complements and feeds into future EPR systems by building the infrastructure and cultural norms necessary for widespread textile reuse.

9.1.3 Enact Supportive Policies and Incentives for Textile Waste Diversion

9.1.3.1 Implement Recycled Content Requirements

Establish mandatory recycled content requirements for select manufactured goods sold in Nova Scotia such as apparel, home textiles, furniture, and industrial materials. This will help to create consistent demand for post-consumer recycled fibres and support the growth of domestic textile recycling infrastructure. These requirements would compel manufacturers and importers to include a minimum percentage of recycled textile content in the products they sell or distribute in Nova Scotia.

Currently, a major barrier to scaling textile-to-textile recycling is the lack of guaranteed end markets for recycled fibres. Without predictable demand, recyclers face difficulty justifying large capital investments in processing equipment, technology development, or feedstock procurement. By mandating recycled content across key product categories, governments can stimulate stable demand, drive innovation in fibre recovery, and increase the economic viability of textile recycling initiatives.

These requirements can be tiered or phased in over time, starting with easily recyclable fibres like mechanically recycled cotton or polyester, and expanding to include blended materials as recycling technologies mature. Priority sectors may include apparel (e.g., t-shirts, uniforms, workwear), home textiles (e.g., bedding, curtains, towels), upholstered furniture and furnishings (e.g., couches, cushions), and industrial or institutional textiles (e.g., cleaning rags, automotive insulation). Clear labeling requirements, third-party verification systems, and support for small- and medium-sized enterprises will be necessary to ensure compliance and enable equitable participation across the value chain.

9.1.3.2 Provide Economic Incentives for End-of-Life Textile Collection, Recycling and Innovation

Offer a robust suite of economic incentives to support businesses, charities, and entrepreneurs engaged in textile collection, repair, reuse, and recycling to expand the province's capacity for textile diversion. Nova Scotia currently lacks the industrial capability to process post-consumer textiles at scale. Targeted incentives such as tax credits, grants, low-interest loans, and zoning allowances can help close this gap and attract entrepreneurs, startups, and established businesses to participate in building the recovery ecosystem.

Investment should focus on scaling existing operations and supporting new ventures that address current infrastructure gaps. Many organizations already engaged in textile diversion and sorting, such as charitable thrift stores and community repair enterprises, operate with limited resources and aging equipment. Financial support through capital grants, low-interest loans, or cost-sharing programs can help them increase sorting capacity, upgrade their facilities, expand service coverage, produce feedstock raw material, and introduce innovations that increase efficiency and quality control.

Provide tax incentives to companies that develop or adopt textile recycling technologies, including mechanical or chemical processing of fibres. These incentives could apply to capital investments in equipment, facility retrofits, research and development, or workforce training. Special attention should be given to technologies that are modular, low-carbon, and adaptable to the regional fibre mix (e.g., cotton and polyester-heavy waste streams).

In parallel, offer grant funding and low-interest loans to small businesses and social enterprises focused on textile repair, upcycling, remanufacturing, and resale. These businesses are often the backbone of local reuse economies, but face barriers such as high operating costs, limited access to commercial space, or difficulty securing working capital. Grants could support activities like tool purchases, space renovations, or marketing, while loans could help scale successful business models.

Zoning allowances and planning support should also be considered to reduce friction for establishing local collection, sorting, or recycling operations. For example, underutilized industrial or commercial properties could be prioritized for conversion into textile recovery hubs, and local governments could streamline permitting processes for circular economy initiatives.

These combined incentives not only enable the development of essential physical infrastructure but also spark innovation in product design, business models, and community-based solutions. By fostering a supportive financial environment, Nova Scotia can position itself as a national leader in textile recovery, driving green job creation, supporting local economies, and substantially reducing textile waste. Moreover, prioritizing the adaptive reuse of existing buildings for textile sorting, repair, or recycling facilities leverages existing assets, minimizes environmental impact, and accelerates the rollout of circular infrastructure across the province.

9.1.3.3 Provide Consumer Incentives for Circular Fashion

Establish a suite of consumer-facing incentives and regulatory measures to promote circular fashion behaviours such as repairing, reusing, reselling, renting, and responsibly recycling textiles. These incentives are designed to shift consumer culture away from fast fashion and disposability toward long term value, care, and stewardship of clothing. A cornerstone of this strategy is to require fashion brands and retailers to provide repair services, either in-store, through third-party partners, or via mail-in programs. Mandatory repair offerings not only extend the usable life of garments but also send a clear message that brands are accountable for the aftercare of their products. This approach mirrors emerging international best practices and aligns with waste reduction goals by preventing premature disposal and reinforcing product durability as a standard.

In addition to regulatory requirements, the province should implement incentives that empower consumers to choose circular options, including:

- Repair vouchers or subsidies to reduce the cost of mending clothing through local tailors, cobblers, or community repair events;
- Tax credits or rebates for purchasing second-hand garments or participating in clothing rental services;
- Deposit-refund schemes that reward consumers for returning worn garments to designated collection points;
- Loyalty or discount programs offered in partnership with businesses that encourage repeat circular behaviour, such as donating, renting, or upcycling.
- Preferential rates or subsidies for booking community centres to host reuse-focused events, including clothing swaps, free markets, yard sales, and circular economy pop-ups.

Consumer incentives, when paired with mandatory repair requirements for retailers, help redefine fashion as a system of care, reuse, and responsibility. These measures reduce waste, create demand for circular services, and support small businesses in the repair and resale sector. Most importantly, they build a culture where extending the life of clothing is not only possible, but expected.

9.1.4 Pilot Mechanical Recycling Projects

Leverage existing textile collection and sorting infrastructure in Nova Scotia to launch a pilot mechanical recycling project focused on converting post-consumer textiles into feedstock for construction and industrial applications. This pilot would support research and development into the viability of using mechanically recycled mixed fibres as additives in products such as insulation, acoustic panels, wallboard, composite concrete, or erosion control materials.

Mechanical recycling involves shredding and processing textiles into fibrous materials without the use of chemicals, making it more accessible and environmentally friendly than other recycling methods. While recycled fibre quality may not always meet the standards required for new garments, these materials hold significant promise in non-clothing sectors, where strength, insulation properties, or bulk are more important than aesthetics. By working with local construction companies, material engineers, and recyclers, this pilot can test different formulations and explore technical, economic, and environmental feasibility. It also provides a valuable opportunity to divert low-grade or non-rewearable textiles from landfill, especially materials that are currently difficult to market in reuse systems and those that should not be exported. Importantly, this initiative would also generate critical data and insights on feedstock composition, product performance, processing costs, and market potential, informing future investment in scaled mechanical recycling infrastructure. It can also be used to prototype circular supply chains that connect textile recovery efforts with regional industries in construction, green building, and infrastructure development.

9.2 Medium Term (3-7 Years): Scaling Infrastructure and Policy Integration

The medium term phase of this roadmap focuses on building the infrastructure and policy frameworks necessary to support a province-wide circular textiles system. While short term actions lay the groundwork through public engagement, low-barrier collection strategies, and early partnerships, the 3-7 year window represents a critical scaling period in which Nova Scotia must transition from experimentation to implementation, creating a stable, well-connected system that can support higher volumes, serve diverse communities, and prepares Nova Scotia for a fully integrated circular textile economy in the years ahead. It provides an opportunity to formalize partnerships between municipalities, charitable organizations, social enterprises, and private sector actors, ensuring that infrastructure and policy development is inclusive, equitable, and informed by those already active in the space.

9.2.1 Regional and National Coordination

9.2.1.1 Explore Atlantic Canada Collaboration

Establish strategic partnerships with other Atlantic provinces to harmonize textile waste policies, waste audit methodologies, funding programs, and recycling initiatives across the region. Collaboration at the interprovincial level is essential to achieving scale, consistency, and efficiency in the transition to a circular textile economy, especially in provinces with smaller populations, geographically dispersed communities, and limited infrastructure, like those in Atlantic Canada. This idea is even more appealing amidst discussions by Atlantic Canadian provinces to turn the region into a free trade zone (Moore, 2025).

By aligning waste audit guidelines, provinces can generate comparable data on textile waste generation, composition, and collection outcomes. This common baseline supports joint decision-making, coordinated investment, and better advocacy to the federal government for funding and regulatory support. Harmonizing textile waste policies provides an opportunity to co-develop best practices and avoid duplicating efforts on public education, enforcement mechanisms, and stakeholder engagement.

Jointly pursuing funding opportunities, whether through provincial programs or federal climate and circular economy funds, can strengthen project proposals and allow the region to pilot innovative solutions at a larger scale. For example, Atlantic provinces could co-invest in regional fibre-sorting infrastructure, mechanical recycling pilots, or shared digital tracking systems for textile diversion.

This collaborative approach will also help address regional equity concerns, ensuring that small or rural jurisdictions are not left behind in textile policy development. By building on existing intergovernmental forums or creating a dedicated textile circularity working group, Atlantic Canada can position itself as a leader in regional cooperation on waste reduction and resource recovery.

9.2.1.2 Engage with the Federal Government

Engage proactively with the federal government to advocate for national-level policy reforms that address upstream drivers of textile waste, including the overproduction and importation of low-quality, non-durable textiles. One key avenue is to call for import restrictions or tariffs on ultra-fast fashion items and low-quality garments that are produced cheaply, lack durability, and contribute disproportionately to landfill volumes. These items often enter Canada at low cost, flood the secondhand market, and quickly become waste due to their limited wearability and poor material quality. Implementing tariffs or minimum quality standards would not only reduce the volume of incoming waste-prone textiles but also send a market signal to producers and importers to prioritize longer-lasting, recyclable materials. This would align with growing global efforts to hold manufacturers accountable for the environmental impacts of their supply chains.

Additionally, advocate for the elimination of the federal Duty Drawback Program, which currently allows importers to receive a refund on duties paid for unsold inventory that is destroyed rather than sold, donated, or repurposed (FTA, 2021). This policy creates a perverse incentive for waste by making it more financially attractive for companies to destroy new clothing than to circulate it in the secondary market, donate it to charities, or invest in recycling infrastructure. Eliminating the duty drawback for destroyed textiles would remove a major barrier to reuse, and encourage businesses to explore more sustainable end-of-life options for unsold stock, including donations, resale partnerships, or product take-back schemes. It would also level the playing field for circular businesses and charitable organizations that currently compete with overstocked fast fashion.

9.2.2 Develop Sorting and Processing Infrastructure

9.2.2.1 Invest in Textile Sorting and Processing Infrastructure

Significant investment in textile sorting and processing infrastructure is essential for scaling a circular textile system in Nova Scotia. A key priority is the adoption of automated fibre-sorting technology, which uses optical recognition systems (such as NIR spectroscopy) to identify textile fibres by type and composition. This technology enables the separation of cotton, polyester, wool, blends, and other materials, making it possible to produce high-quality feedstock for mechanical or chemical recycling. Without this capability, large quantities of textiles are lost to landfill due to contamination or sorting inefficiencies.

Funding can also be used to develop or retrofit centralized collection hubs or sorting depots, particularly in regions with high textile waste generation or limited access to donation infrastructure.

These regional hubs would serve as key nodes in the textile diversion network, aggregating materials from both urban and rural areas, and serving as processing or transfer points for repair, reuse, or recycling and supporting both charitable and commercial recovery efforts.

9.2.2.2 Encourage Retailer Take-Back Programs

Support and incentivize the development of textile take-back programs by partnering with brands and retailers to create reverse logistics systems for collecting end-of-life garments directly from consumers. These programs offer a convenient, brand-aligned option for the public to responsibly return unwanted clothing, helping divert textiles from landfill while fostering greater producer responsibility and customer engagement. Retailers, especially those with large physical footprints, are well-positioned to act as collection points for used garments. By establishing in-store take-back programs, they can leverage existing logistics infrastructure (e.g., shipping networks, warehouses, and sorting centres) to facilitate the flow of post-consumer textiles to charitable partners. Encouraging these systems helps close the loop on the consumption cycle and prepares both retailers and consumers for future EPR requirements.

To encourage participation, governments and municipalities can offer diversion credits, tax incentives, promotional support, or public acclamations (e.g., "circular champion" designations) to recognize retailers who actively participate in textile diversion efforts. These rewards can enhance a brand's environmental credentials and help normalize sustainable business practices in the fashion and retail sector. Importantly, take-back programs should be aligned with the charitable sector, allowing retailers to partner with local nonprofits, thrift operators, or social enterprises. Retailers can donate collected items to the charity of their choice, supporting community-based reuse and ensuring that collected textiles stay within the local economy when possible.

Over time, data from retailer take-back programs such as volume collected, material types, and reuse rates, can inform broader policy development and infrastructure planning. These initiatives also provide a valuable opportunity to educate consumers about circular fashion, repair, and responsible consumption.

9.2.3 Stimulate Markets for Recycled Feedstock

Develop a comprehensive strategy to stimulate demand for recycled textile feedstock by fostering local markets, incentivizing manufacturers, and integrating recycled content into public and private procurement policies. A successful circular textile economy requires not only the collection and processing of used materials, but also a strong and reliable end market for the resulting recycled fibres. Stimulating markets to create demand for recycled feedstock will ensure that recycling investments have buyers once supply exists. As an early step, conduct a market development study to identify potential users of recycled textile materials, assess technical specifications required by different industries (e.g., construction, automotive, furniture, apparel), and uncover barriers and opportunities for local feedstock adoption.

Public procurement strategies, incentives for manufacturers and designers, support for pilot projects and collaborations, marketing and matchmaking programs, and certification or labelling schemes that identify products as having verified recycled content can all be helpful strategies to adopt. The findings of the market development study should inform targeted actions to strengthen local demand and guide infrastructure investment priorities. Stimulating market demand also requires confidence in the quality and consistency of recycled materials. Supporting standards development and quality testing, possibly in partnership with academic institutions or research centres, can help ensure that recycled fibres meet the performance needs of manufacturers.

9.2.4 Establish a PRO

9.2.4.1 Create a PRO to Oversee Textile Recycling

Establish a PRO specifically for textiles to design, implement, and manage an EPR system in Nova Scotia. A PRO is a central body, typically formed by producers, importers, and retailers, that assumes legal and financial responsibility for the end-of-life management of the products they place on the market. For textiles, this would include overseeing the collection, transportation, sorting, reuse, and recycling of garments, household textiles, and footwear.

The creation of a textile-focused PRO provides an opportunity to formalize and standardize diversion efforts across the province, ensuring that producers contribute to the costs of managing textile waste,

rather than leaving the burden to municipalities, charities, or consumers. A well-designed PRO can drive innovation, support local infrastructure, and ensure transparent data reporting while promoting fair and equitable stakeholder engagement.

Crucially, the PRO should be mandated to prioritize reuse over recycling, in keeping with circular economy principles and the waste hierarchy. This means building strong partnerships with charitable organizations, thrift operators, and social enterprises that already have networks in place to recover, resell, and redistribute used textiles. Reuse not only has a lower environmental footprint than recycling, but also creates social value through job creation, affordable clothing access, and funding for community programs.

The PRO would also be responsible for coordinating and financing public awareness campaigns on proper donation and disposal, setting and tracking collection and diversion targets, supporting research and development in textile recovery technologies, ensuring compliance among producers, and reporting transparently on collection volumes, material destinations, and environmental impact.

By centralizing program administration under a PRO, the province can reduce duplication, improve efficiency, and ensure a level playing field among producers of all sizes. A well-governed PRO also enables better coordination with other jurisdictions and positions Nova Scotia to align with national EPR standards as they emerge.

9.2.4.2 Fund the PRO Through Producer Contributions

Ensure the long term sustainability of Nova Scotia's textile diversion system by funding the PRO through mandatory financial contributions from manufacturers, retailers, and importers of textiles. Under an EPR model, these contributors are obligated to fund the collection, transportation, sorting, reuse, and recycling of the textiles they place on the market, shifting the financial burden away from municipalities, charities, and taxpayers.

Producer contributions can be structured through eco-modulated fees, where the amount paid is based on product characteristics such as durability, recyclability, fibre composition, and environmental impact. For example, a brand that produces garments made from mono-material organic cotton may pay a lower fee than one producing polyester-blend fast fashion items that are difficult to recycle. This structure incentivizes sustainable design choices upstream, helping reduce waste at the source.

The funds collected by the PRO would be used to:

- Develop and maintain textile collection infrastructure (e.g., bins, depots, curbside pickup partnerships);
- Support charitable and social enterprise partners engaged in reuse and resale;
- Invest in sorting and recycling facilities, including equipment and technology upgrades;
- Run public education and awareness campaigns to promote proper disposal behaviours;
- Support innovation in circular product design, repair services, and recycling technology;
- And track and report performance metrics, such as diversion rates and environmental benefits.

Contributions from producers also provide financial predictability that enables long term planning and capital investment. As opposed to relying on grant funding or pilot-based initiatives, this model ensures the program is resilient and responsive to changing market dynamics and waste volumes. To ensure fairness, the system should require registration and reporting from all producers, with enforcement mechanisms to prevent free riders. Contributions can be scaled based on sales volume or product weight, and small businesses can be offered a threshold exemption or simplified reporting process to reduce administrative burden. In short, funding the PRO through producer contributions not only aligns with the "polluter pays" principle but also embeds true cost accountability into the textile supply chain which is a critical step in transitioning to a circular and responsible textile economy.

9.2.5 Pilot Voluntary EPR Program for Textiles

9.2.5.1 Develop a Voluntary EPR Pilot

Launch a voluntary EPR pilot program as a transitional step toward full-scale, mandatory producer responsibility legislation. This pilot would invite select brands, retailers, and importers, particularly those with demonstrated sustainability commitments or corporate social responsibility mandates, to financially contribute to textile collection, reuse, and recycling initiatives on a limited and controlled scale.

A voluntary pilot provides a low-risk environment to test EPR design elements, stakeholder roles, and operational logistics before introducing province-wide regulations. It also allows early adopters to help co-create the system, inform policy development, and demonstrate leadership

in circular fashion. These industry partners can help trial various mechanisms for producer contributions, such as eco-modulated fees or direct funding of collection infrastructure, while piloting effective communication strategies for consumer engagement.

The pilot could fund:

- Textile collection at thrift retail locations or through municipal partnerships;
- Grants for charities or social enterprises to scale reuse, repair, and resale capacity;
- Sorting and recycling technology trials, including automated fibre sorting or pre-processing for chemical recycling;
- Awareness campaigns to educate the public about proper textile disposal and the role of producer responsibility;
- And data collection tools to track participation, recovery rates, and material flows.

Participation in the pilot could be incentivized through government recognition, branding opportunities (e.g., "Circular Fashion Leader" certification), tax benefits, or early access to recycled-content procurement programs. This pilot phase also serves as a proof of concept to demonstrate the feasibility and value of an EPR system for textiles by generating real-world data on costs, infrastructure needs, and stakeholder capacity. Lessons learned can inform the structure of a future mandatory EPR regulation, including fee schedules, reporting protocols, enforcement models, and material scope. Importantly, a voluntary pilot fosters early collaboration between industry, municipalities, and nonprofits, helping to build trust and alignment before broader regulatory requirements are introduced.

9.2.5.2 Require Data Management and Transparency

Mandate robust data collection, management, and public reporting requirements for the PRO to ensure transparency, accountability, and continuous improvement in the textile diversion system. Specifically, the PRO should be required to publish annual reports detailing key performance indicators such as collection volumes, reuse and recycling rates, contamination levels, environmental outcomes, and financial flows. Transparent reporting is essential for building public trust in the system, demonstrating the effectiveness of EPR, and justifying ongoing investments from producers, government, and community partners. It also allows stakeholders to track progress toward provincial and national waste reduction targets, while identifying bottlenecks, inefficiencies, or opportunities for system optimization.

9.2.5.3 Enforce Brand Accountability Through Spot Audits

Implement a system of spot audits at major textile recovery points, such as charitable thrift stores and donation sorting centres to track brand contributions to the post-consumer textile waste stream. These audits would identify which manufacturers, retailers, and importers are most represented among textiles that cannot be resold, repaired, or recycled and ultimately require disposal. Spot audits also provide charities and social enterprises with a mechanism to voice concerns about specific brands that consistently offload unsellable goods, burdening donation centres with disposal costs. In this way, audits help protect the integrity and financial sustainability of the charitable reuse sector, ensuring that it is not used as an informal waste disposal channel by fast fashion companies. Incorporating regular spot audits into the broader governance of the PRO reinforces producer responsibility, supports data-driven policy-making, and encourages more thoughtful, circular product design across the textile industry.

9.3 Long Term (7+ Years): Implementing Provincial Textile EPR

The long term objective of Nova Scotia's textile circularity plan is to implement a comprehensive, province-wide EPR system for textiles and ensure a fully functional circular textile economy. By this stage, foundational systems for collection, sorting, reuse, and recycling will be established and tested through pilot programs, infrastructure investments, voluntary partnerships, and regional collaborations. A mature EPR framework will build on these early efforts and make producer responsibility mandatory, backed by legislation, enforcement mechanisms, and clear performance targets.

9.3.1 Mandatory Provincial EPR Program

Enact legislation to implement a mandatory EPR program for textiles, making it a legal requirement for brands, retailers, and importers to finance and manage the end-of-life recovery of the textile products they introduce into the Nova Scotia market. This legislation

marks a critical transition from voluntary participation to a regulated, province-wide system of accountability, ensuring that those who profit from textile production and sales are also responsible for their environmental impacts.

Under the legislation, producers would be obligated to:

- Register with the designated PRO;
- Pay eco-modulated fees based on product characteristics (e.g., recyclability, durability, fibre content);
- Finance or directly support systems for textile collection, sorting, reuse, and recycling;
- Report on volumes sold, collected, reused, and recycled, with third-party verification;
- And comply with clear performance standards, including reuse and diversion targets.
- Recognizing the complexity of the transition, the legislation should be phased in with sufficient lead time for stakeholders to prepare. This includes allowing:
- Producers and retailers to adjust supply chains, pricing models, and product designs;
- Charities, municipalities, and recyclers to scale infrastructure and build partnerships;
- Consumers to adapt to new take-back systems and understand their role in textile diversion.

A clearly communicated timeline, such as a 2-to 3-year implementation window from passage to enforcement, will ensure a smooth rollout and allow for stakeholder consultation, pilot extensions, and the refinement of compliance tools. By embedding responsibility into law, Nova Scotia will take a decisive step toward system-wide change, shifting from short term solutions to a fully circular, producer-funded textile management system.

9.3.2 Investment in Domestic Recycling Facilities

Secure targeted investment to support the development of large-scale mechanical and chemical textile recycling facilities in Nova Scotia, enabling the province to process post-consumer textile waste locally and generate high-value recycled materials for use in new products. This investment is critical to achieving a fully circular textile economy, reducing reliance on export markets, and supporting domestic innovation in sustainable manufacturing.

To build this capacity, the province should:

- Secure funding through public-private partnerships, provincial infrastructure programs, and federal green economy initiatives;
- Offer capital grants or low-interest loans to private sector players, social enterprises, or cooperatives seeking to establish textile recycling operations;
- Provide tax incentives or expedited permitting for circular economy projects;
- And engage with international technology providers, such as ANDRITZ Laroche (mechanical recycling) and REDWAVE (sorting and sensor-based processing), to procure or license best-in-class equipment.

These facilities should be strategically located to integrate with existing textile collection and sorting hubs and be designed to handle a range of feedstock types, particularly materials identified through earlier waste composition studies as having high recycling potential (e.g., cotton and polyester). Where feasible, retrofitting existing industrial sites, such as decommissioned mills or underutilized manufacturing facilities, can reduce costs and environmental impact. This approach can deliver meaningful benefits to communities impacted by plant closures, offering pathways for job creation and supporting broader efforts to diversify local economies.

9.3.3 Introduce Textile Disposal Bans

Implement progressive restrictions on textile disposal to reduce the volume of textiles sent to landfill, increase diversion rates, and reinforce the province's transition toward a circular economy. Textile disposal bans are a critical regulatory lever that help shift behaviour across the value chain, motivating individuals, institutions, and businesses to prioritize reuse, repair, and recycling over disposal. A phased approach to implementation is recommended, beginning with public education and voluntary separation programs, followed by partial bans on certain textile categories (e.g., clothing, linens), and ultimately expanding to include all residential and commercial textiles. This staged model allows time for infrastructure development and stakeholder readiness while steadily increasing compliance expectations.

One effective mechanism to support this transition is the introduction of a clear bag program at the curb. Under this system, residents are required to place garbage in transparent bags, allowing waste collectors to visually inspect contents for restricted materials like textiles. This approach serves as both a compliance and education tool, raising awareness among residents,

creating feedback loops (e.g., warning stickers or rejection notices), and giving municipalities insight into how textiles are still entering the waste stream. Over time, it can be paired with targeted enforcement, such as fines or collection refusals, to ensure effectiveness.

Introducing disposal bans is not just about limiting landfill use, it is about reframing how textiles are valued, handled, and reintegrated into the economy. This policy will help normalize circular behaviours, drive system-wide accountability, and move Nova Scotia closer to its goal of a fully functional, low-waste textile ecosystem.

9.4 **Summary**

Nova Scotia has a timely and strategic opportunity to position itself as a national leader in textile circularity by implementing a phased and integrated approach to textile waste management. These recommendations outline a clear progression, from immediate actions to reduce waste and build public engagement, to the development of sorting and recycling infrastructure, and finally to the implementation of a robust EPR framework. Taken together, these recommendations provide a cohesive, future-ready strategy to build a circular textile economy grounded in environmental stewardship, social impact, and economic resilience.

Through this comprehensive, staged approach, Nova Scotia can dramatically reduce the volume of textile waste sent to landfill, while simultaneously advancing economic development and creating green jobs in the recycling, repair, and reuse sectors. It will empower both consumers and institutions to actively participate in circular practices, foster investment and innovation in sustainable textile technologies, and position the province as a model for other jurisdictions aiming to align with circular economy principles and climate action goals. Importantly, the successful implementation of this roadmap will also contribute significantly to Nova Scotia's broader waste reduction targets, including its goal of reducing waste generation to 30 kilograms per person per year by 2030. This strategy reflects global best practices in textile waste management while remaining grounded in the local context. It balances ambition with practicality and offers a clear, achievable path toward a regenerative, equitable, and low-waste textile future for Nova Scotia.

Conclusion

The TTNS Phase I Landscape Scan underscores the urgent need for dedicated textile waste diversion and recycling solutions in the province. Landfill audits show that textile waste is rising at an alarming rate, with the majority of used textiles still ending up in landfills despite the presence of charitable and for-profit collection programs. Contamination, insufficient recycling infrastructure, and underdeveloped markets for recycled textiles continue to hamper diversion efforts.

This study has identified clear opportunities to improve textile circularity in Nova Scotia. Advances in fibre-to-fibre recycling, including mechanical, chemical, and biochemical processes, as well as the growing feasibility of automated sorting technologies, suggest that scalable recycling solutions are within reach. Interest from key stakeholders, including municipalities, thrift organizations, and textile processors, provides a strong foundation for action. Economic analysis further supports the case for investment in textile recycling infrastructure, highlighting the potential for job creation and alignment with Nova Scotia's green economy goals.

However, systemic barriers remain. The absence of EPR policies for textiles limits industry accountability and funding for recycling initiatives. The lack of sorting and processing facilities in Nova Scotia further constrains the ability to divert textiles from landfills. Without a comprehensive strategy that integrates policy support, infrastructure investment, and public engagement, textile waste levels will continue to rise.

To address these challenges, this report recommends a multi-pronged approach. Consumer education and engagement campaigns are essential to promote responsible consumption, repair, and reuse. Pilot projects, particularly those developed in collaboration with municipalities and local enterprises, can test scalable models for textile collection and recycling. Policy interventions, including a progressive landfill ban on textiles and the phased implementation of EPR (from voluntary to mandatory), will establish a regulatory foundation for producer accountability. Infrastructure investment, including the development of regional sorting and processing hubs, will enable the province to support both open-loop and closed-loop recycling, particularly through the adaptive reuse of underutilized industrial facilities.

Nova Scotia has the opportunity to lead in textile circularity by building a localized, scalable model for textile recycling. By implementing the recommendations outlined in this report, the province can significantly reduce textile waste, foster innovation in sustainable materials management, and create economic opportunities in the circular economy. The findings from TTNS Phase I lay the groundwork for a long term, systems-level transformation of Nova Scotia's textile ecosystem, paving the way for future public education programs, pilot projects, and long term policy advancements.

Appendix A

Interview Organizations

Sector	Organizations Interviewed	N
Government Agencies	• Halifax Regional Municipality Department of Solid Waste (NS) • City of Markham (ON) • Municipality of Colchester Solid Waste (NS) • Nova Scotia Department of Environment and Climate Change (NS)	4
Recycling and Waste Management	• General Recycled Ltd. (BC) • Municipal Group (NS) • Evergreen Recycling (NL) • Circular Materials (Canada) • EUROMITEKS (Serbia) • Loop Industries (QC)	6
Nonprofit Organizations (Non-retail)	• California Product Stewardship Council (US) • Divert NS (NS) • DirectionNS Council (NS) • Fashion Takes Action (Canada) • Accelerating Circularity (US)	5
Textile Manufacturers and Brands	• BEEN London (UK)	1
Research and Advocacy Groups	• Resource Recycling Systems (US)	1
Second-hand Retailers and Resellers	• The Salvation Army Thrift Store (Canada) • Beyond Retro (UK, EU)	2
Sorters, Graders, and/or Exporters	• DeBrand (BC) • Bank and Vogue Ltd. (US) • North American Wool Stock Inc. (QC) • CanAm Group (BC)	4
Independent Subject Matter Expert	• Laura Chenoweth (NS) • Samuel McGill (NS)	2

Appendix B
Summary of Interview Questions

The following interview questions were used to guide semi-structured conversations with stakeholders across the textile value chain.

Questions were adapted based on the interviewee's role, sector, and expertise.

Category	Sample Questions
Organizational Role & Overview	• Can you describe your organization's role in textile reuse, recycling, or disposal? • What are your main activities related to textiles?
Collection & Logistics	• How are textiles collected, sorted, and transported in your system? • What challenges do you face in collecting used textiles?
Sorting & Processing	• What happens to textiles after collection? • Do you have the capacity to sort or grade textiles?
End Markets & Revenue	• What are the final destinations for textiles (e.g., resale, recycling, landfill)? • Are there markets for specific textile types or qualities?
Data & Metrics	• What kind of data do you collect about textile volumes or outcomes? • Are there gaps in data you'd like to address?
Barriers & Challenges	• What are the biggest barriers to scaling textile reuse or recycling in Nova Scotia? • How does funding, infrastructure, or regulation impact your work?
Opportunities & Innovation	• What opportunities do you see for innovation or growth in the sector? • Are there models from other regions you admire?
Policy & Regulation	• How do current policies (municipal, provincial, or federal) support or hinder your work? • What policy changes would help advance a circular textile economy?
Collaboration & Partnerships	• Who are your key partners in this work? • Are there collaboration opportunities that should be explored further?
Vision for the Future	• What would a successful textile transformation look like in Nova Scotia? • What supports would be needed to achieve that vision?

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