

Circular Textile Recovery in Hamilton, Canada: StyleCycle as a Co-Designed Model for Textile Waste Reduction and Inclusive Community Impact

Maryam Muayad

McMaster University, Faculty of Science, Hamilton, ON, CA

Maria Alex

McMaster University, Faculty of Health Sciences, Hamilton, ON, CA

Abstract

Hamilton, Canada produces approximately 240,000 tonnes of municipal waste each year, with textile disposal contributing unnecessarily to landfill pressure and avoidable carbon emissions. This pilot study explores *StyleCycle*, a community-based circular textile recovery initiative developed in collaboration with local equity-serving organizations in Hamilton. The project is grounded in Equity, Diversity, and Inclusion (EDI) principles and aims to embed accessibility, dignity, and cultural responsiveness into both environmental sustainability efforts and clothing redistribution practices.

StyleCycle operates through a four-part circular model: (1) collecting used clothing, (2) laundering and repairing garments, (3) curating styled outfit bundles, and (4) redistributing these items through trusted community partners. In addition to garment recovery, the initiative extends its impact through workshops held with organizations, where youth engage with themes of textile care and sustainable consumption. This model positions circular fashion not only as an environmental strategy, but also as a community-informed and socially responsive practice shaped by lived experience.

Environmental outcomes were estimated using the *TexCycle* impact calculator. The pilot generated benefits equivalent to 75.9 kg of CO₂ emissions avoided, the diversion of 140 plastic bottles, and the preservation of 17.34 m² of arable soil. These findings suggest that co-designed, locally grounded circular systems can meaningfully reduce textile waste while also advancing inclusive community support.

It is anticipated that community co-design models such as *StyleCycle* can serve as effective and scalable approaches for integrating circular economy principles with community engagement. This research suggests that localized, partnership-driven initiatives can simultaneously address environmental sustainability and social equity, offering a practical framework for advancing inclusive circular fashion systems both locally and globally.