Health Impact Review of SHB 1420
Establishing producer responsibility for textiles
(2025 Legislative Session)

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Full review

The full Health Impact Review report is available at:

https://sboh.wa.gov/sites/default/files/2025-11/HIR-2026-01-SHB1420.pdf

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Executive Summary
SHB 1420, Establishing producer responsibility for textiles
(2025 Legislative Session)

Evidence indicates that SHB 1420 would result in Washington State Department of Ecology (Ecology) implementing, administering, and enforcing an extended producer responsibility or product stewardship (EPR) program for covered apparel and textile articles and a Producer Responsibility Organization (PRO) registering with Ecology, conducting a needs assessment, and submitting and implementing a plan, which would likely increase public awareness and increase collection of covered apparel and textile articles. It is unclear how increased collection may impact reuse and recycling of apparel and textile articles.

BILL INFORMATION

Sponsors: House Environment & Energy Committee (originally sponsored by Representatives Reeves, Berry, Mena, Peterson, Ramel, Doglio, Pollet, Ormsby, Hill)

Summary of Bill:
Full details about provisions of this bill can be found in the bill text linked above. Given the large number of provisions, this summary only highlights sections relevant to this review.

- Requires Ecology to implement, administer, and enforce an EPR program for covered apparel and textile articles.
    - Requires Ecology to adopt any necessary rules by December 31, 2027, following specified requirements.
- Requires producers of covered apparel and textile articles to register with Ecology or join a PRO that registers with Ecology on behalf of producers by January 1, 2027.
    - Requires Ecology to approve a PRO that meets specified requirements by March 1, 2027, and states Ecology may approve multiple PROs after January 1, 2036.
    - Requires a PRO, by March 1, 2028, to prepare, cover the costs of, submit to Ecology, and update at least every 5 years, a needs assessment addressing 13 specified categories of topics.
    - Requires a PRO, with certain requirements, to: 1) By January 1, 2029, prepare, develop, and submit to Ecology for approval a plan that includes specified components for the collection, transportation, repair, sorting, recycling, and the safe and proper management of covered apparel and textile articles in Washington State; 2) By January 1, 2031, have a plan approved by Ecology; 3) By April 1, 2031, begin implementation of an approved plan; 4) By January 1, 2032, fully implement an approved plan; and 5) Review the plan every 5 years. Outlines additional specific responsibilities of a PRO.
- Requires producers of apparel to annually disclose specified information to Ecology beginning January 1, 2027, including the presence of specified chemicals in covered products and environmental impact activities. Producers of apparel whose worldwide gross income exceeds $100 million must disclose additional specified information to Ecology.

HEALTH IMPACT REVIEW

Summary of Findings:
This Health Impact Review found the following evidence for SHB 1420:

- **Informed assumption** that requiring producers of covered apparel and textile articles to register with Ecology or join a PRO that registers with Ecology on behalf of producers would result in some producers of covered apparel and textile articles registering with Ecology or joining a PRO that registers with Ecology. This assumption is based on provisions of the bill and information from key informants.
- **Informed assumption** that producers of covered apparel and textile articles registering with Ecology or joining a PRO that registers with Ecology would result in Ecology approving a PRO that meets specified requirements. This assumption is based on provisions of the bill and information from key informants.
- **Informed assumption** that Ecology approving a PRO that meets specified requirements would result in a PRO submitting a needs assessment addressing 13 specified categories of topics. This assumption is based on provisions of the bill and information from key informants.
- **Informed assumption** that a PRO submitting a needs assessment addressing 13 specified categories of topics would result in a PRO submitting and fully implementing a plan that meets specified requirements. This assumption is based on information from key informants.
- **Informed assumption** that granting authority to and requiring Ecology to adopt rules to implement, administer, and enforce an EPR program for covered apparel and textile articles would result in Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles. This assumption is based on provisions of the bill and information from key informants.
- **Informed assumption** that Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles would result in a PRO submitting and fully implementing a plan that meets specified requirements. This assumption is based on information from key informants.
- **Informed assumption** that a PRO submitting and fully implementing a plan that meets specified requirements would increase public education and awareness about collection of apparel and textile articles for reuse and recycling. This assumption is based on provisions of the bill and information from key informants.
- **A fair amount of evidence** that increased public education and awareness about collection of apparel and textile articles for reuse and recycling would likely increase collection of apparel and textile articles for reuse and recycling.
- **Unclear evidence** how increased collection of apparel and textile articles for reuse and recycling may impact reuse and recycling of apparel and textile articles. There is limited research on the impacts of EPR programs for apparel and textile articles, and there is currently little to no large-scale reuse or recycling infrastructure to process apparel and textile articles.

Additional Considerations includes discussion of reporting chemical composition.

Introduction and Methods

A Health Impact Review is an analysis of how a proposed legislative or budgetary change will likely impact health and health disparities in Washington State (RCW 43.20.285). For the purpose of this review "health disparities" have been defined as differences in disease, death, and other adverse health conditions that exist between populations (RCW 43.20.025). Differences in health conditions are not intrinsic to a population; rather, inequities are related to social drivers or determinants (access to healthcare, economic stability, racism, etc.). This document provides summaries of the evidence analyzed by State Board of Health's Health Impact Review staff during the Health Impact Review of Substitute House Bill 1420 (SHB 1420).

Health Impact Review staff analyzed the content of SHB 1420 and created a logic model visually depicting the pathway between bill provisions, social determinants, and health outcomes and equity. The logic model reflects the pathway with the greatest amount and strongest quality of evidence. The logic model is presented both in text and through a flowchart (Figure 1).

We conducted an objective review of published literature for each step in the logic model pathway using databases including PubMed, Google Scholar, and University of Washington Libraries. The annotated references are only a representation of the evidence and provide examples of current research. In some cases, only a few review articles or meta-analyses are referenced. One article may cite or provide analysis of dozens of other articles. Therefore, the number of references included in the bibliography does not necessarily reflect the strength-of-evidence. In addition, some articles provide evidence for more than one research question and are referenced multiple times.

We consulted with people who have content and context expertise about provisions and potential impacts of the bill. The primary intent of key informant interviews is to ensure staff interpret the bill correctly, accurately portray the pathway to health and equity, and understand different viewpoints, challenges, and impacts of the bill. For this Health Impact Review, we spoke with 37 key informant interviewees, including: 10 people from city or county solid waste management and recycling programs; 5 people from federal and state associations representing potential producers; 5 people from Washington State agencies with expertise in EPR programs, recycling, and apparel and textile articles; 5 people from state agencies and organizations outside of Washington State with expertise in EPR programs, recycling, and apparel and textile articles; 5 people from organizations with expertise in repair, reuse, or resale of apparel and textile articles; 3 people from organizations with expertise in circular economies and apparel and textile articles; 3 people from state and local governmental public health; and 1 person from a federal agency researching textile waste and circularity. More information about key informants and detailed methods is available upon request.

We evaluated evidence using set criteria and determined a strength-of-evidence for each step in the pathway. The logic model includes information on the strength-of-evidence. The strength-of-evidence ratings are summarized as:

- **Very strong evidence:** There is a very large body of robust, published evidence and some qualitative primary research with all or almost all evidence supporting the association. There is consensus between all data sources and types, indicating that the premise is well accepted by the scientific community.

- **Strong evidence:** There is a large body of published evidence and some qualitative primary research with the majority of evidence supporting the association, though some sources may have less robust study design or execution. There is consensus between data sources and types.
- **A fair amount of evidence:** There is some published evidence and some qualitative primary research with the majority of evidence supporting the association. The body of evidence may include sources with less robust design and execution and there may be some level of disagreement between data sources and types.
- **Expert opinion:** There is limited or no published evidence; however, rigorous qualitative primary research is available supporting the association, with an attempt to include viewpoints from multiple types of informants. There is consensus among the majority of informants.
- **Informed assumption:** There is limited or no published evidence; however, some qualitative primary research is available. Rigorous qualitative primary research was not possible due to time or other constraints. There is consensus among the majority of informants.
- **No association:** There is some published evidence and some qualitative primary research with the majority of evidence supporting no association or no relationship. The body of evidence may include sources with less robust design and execution and there may be some level of disagreement between data sources and types.
- **Not well researched:** There is limited or no published evidence and limited or no qualitative primary research and the body of evidence was primarily descriptive in nature and unable to assess association or has inconsistent or mixed findings, with some supporting the association, some disagreeing, and some finding no connection. There is a lack of consensus between data sources and types.
- **Unclear:** There is a lack of consensus between data sources and types, and the directionality of the association is ambiguous due to potential unintended consequences or other variables.

This review was requested when the Legislature was not in session and was therefore not subject to the 10-day turnaround required by law. This review was subject to time constraints, which influenced the scope of work for this review.

Analysis of SHB 1420 and the Scientific Evidence

Summary of relevant background information

Textile production

- The textile industry (inclusive of apparel and household textile articles) is a complex, fragmented, heterogenous, and global industry.[1]
  - Beginning in the 1980s and following a global shift in production, U.S. apparel manufacturers began to move overseas due to the rising cost of domestic labor and production; availability of lower labor costs and reduced regulatory requirements in other countries; reduced taxes on imports and exports; and additional trade policies.[1-4] The global shift of apparel production "has led to increased complexity and reduced transparency of supply chains as each step of the supply chain often occurs in a different geographical location with unique labor, economic, and environmental policies."[1]
  - In the 1980s, approximately 70% of apparel sold in the U.S. was manufactured in the U.S.[2] In 2022, about 3% of apparel sold in the U.S. was manufactured in the U.S.[2,4] Approximately 1/3 of apparel and textile articles imported into the U.S. are from China.[5]
    - The U.S. is the 3rd largest global producer of cotton for apparel and textile articles.[6] The majority of U.S. cotton is produced in Texas (40%), with Georgia, Mississippi, and Alabama as the next largest producers.[6] The U.S. is the largest global exporter of cotton, accounting for 35% of global cotton exports.[6]
      - U.S. cotton production has historical roots in anti-Black racism and chattel slavery that "systematically devalued and undermined Black workers' lives and labor" and "[r]acial capitalism has shaped the ecological and technological dynamics of cotton production in the [U.S.] South."[7]
      - Today, cotton production in the U.S. is largely mechanized.[6]
      - Cotton production contributes to water system contamination due to pesticide runoff, fertilizers, and minerals.[8]
  - In 2023, the global apparel and textile market "was valued at over 1.8 trillion U.S. dollars and is expected to increase, largely driven by the fashion industry and the growth of e-commerce [i.e., online] platforms."[5]
  - The global textile industry employs 300 million people, many of them women.[1] U.S. apparel manufacturing jobs comprise 0.002% of the global apparel workforce.[9]
- Global textile production has changed and increased dramatically since the 1990s, largely due to fast fashion.[1]

- Fast fashion refers to the mass manufacturing and mass marketing of low-cost clothing to drive and respond to trends.[1,10] "Fast" refers to multiple facets: "(1) rate of production; (2) number of fashion cycles, delivery, consumers' decision to purchase, and (3) rate at which garments are worn and disposed."[1]
    - Unlike historical fashion production, which introduced new clothing collections 2-4 times per year (usually seasonally), fast fashion retailers introduce new clothing collections more than 50 times per year (i.e., approximately 1 new collection per week).[10]
    - Fast fashion products are not suitable for resale, repair, or repurposing into alternative textile products.[1] Fast fashion "is challenging to resell because the garments are lower quality and not designed to last."[11]
    - Fast fashion "fuels a culture of consumption and disposal,"[1] contributing to the volume of low-cost, low-quality apparel entering the waste stream.[10]

- Apparel and textile articles may be composed of a single type of fiber (e.g., 100% cotton, 100% wool, 100% silk) or 2 or more types of fibers (i.e., mixed or blended fibers) (e.g., blends of cotton, polyester, elastane).[1,5,12] Fibers are classified as natural or synthetic (i.e., human-made or manufactured).[5,12]
    - Natural fibers include cellulose (i.e., plant-based) fibers (e.g., cotton, flax, hemp) and protein (i.e., animal-based) fibers (e.g., silk, wool, cashmere).[1,12] Cellulose fibers comprise 27% of the textile industry, and protein fibers represent 2% of textiles.[12]
        - Garments made from natural fibers are more durable, last longer, and offer greater potential for reuse.[10] Natural fibers breakdown more quickly than synthetic materials in a landfill; however, the breakdown of organic materials contributes to greenhouse gas (GHG) emissions (personal communication, Washington State Association of Counties [WSAC], September 2025).
    - Synthetic fibers are human-made or manufactured and include synthetic polymers (e.g., acrylic, nylon, polyester) and naturally-derived polymers (i.e., semi-synthetics) from cellulose (e.g., acetate, lyocell, rayon), natural sugars (e.g., polylactic acid), and protein (e.g., azlon).[1] Synthetic fibers make up 64% of textiles, and semi-synthetic fibers account for 7% of textiles.[12] Approximately 60% of clothing and 70% of household textiles are made from synthetic fibers.[1]
        - Synthetic materials experience microfiber fragmentation during manufacturing, wear, and laundering, resulting in microfiber and microplastic pollution.[9] Exposure to synthetic microfibers has been linked to negative neurotoxic, carcinogenic, immune, and endocrine-disrupting human health outcomes.[9]
        - Over time, consumer demand for synthetic fibers, especially polyester, has increased, while demand for cotton, wool, and cellulosics has remained constant.[1]

- The apparel sector is one of the most polluting and natural resource-intensive industries.[9] Apparel and textile production is associated with high water consumption; water and soil pollution; intense energy use; extensive land use; loss of land, habitat, and biodiversity; microfiber and microplastic pollution; and the release of GHG emissions and other pollutants.[10,11,13]
    - Estimates suggest that the fashion industry accounts for 10% of GHG emissions.[9,14,15]
        - Keeping a clothing item in circulation (i.e., increasing the use of a clothing item or the number times an item is worn during its lifespan) and purchasing a used clothing item can reduce the carbon footprint of the apparel sector.[9] For example, estimates suggest purchasing a used clothing item can reduce its carbon footprint by over 70%, including by offsetting the need for manufacturing a new item.[9]
- Linear business models produce "new products and materials through the use of [new or] raw materials that will be disposed of at the end of life."[9] In contrast, circular business models include "[b]usinesses that reduce the use of new materials for production and extend the lifetime of existing products, particularly those that enable and participate in rental, resale, repair, upcycling [(i.e., making new garments or products with materials from waste)], and recycling."[9]
- Extended producer responsibility or product stewardship (EPR) programs are dedicated recycling programs that require producers of covered products to participate in the collection, transport, and end-of-life management of covered products.[16,17]
    - EPR programs aim to: 1) reduce waste sent to landfills by recovering, reusing, and recycling products; 2) reduce public spending on waste management by requiring producers to pay for recycling; and 3) incentivize innovations in product design and minimize environmental impacts.[18]
        - Globally, EPR programs for apparel and textile articles are limited and emerging.[19]

Textile waste

- Definitions of "textile" and "textile waste" are not standardized and vary widely.[13] Textile waste generally includes items "that no longer suit their desired purpose or function and are discarded", such as "discards from manufacturing, customer returns, and used garments that are no longer desired."[5] Textile waste is typically considered in 3 categories:[11]
    - Post-industrial textile waste includes material generated during textile manufacturing,[11] including offcuts from pattern production (i.e., fabric scraps left after a garment is cut out), samples (i.e., garments sewn in the development and testing process), and deadstock material (i.e., fabric leftover from the production process) (personal communications, August-September 2025).
    - Pre-consumer waste includes material discarded before being sold to a consumer, including products that are manufactured but not sold (i.e., overstock, excess

product, or product that is damaged or does not meet quality control and is disposed of by a producer before being sold to a consumer) (personal communications, August-September 2025).[11]
    - Post-consumer waste includes material used and discarded by consumers or commercial sources (e.g., hospitals, hotels, industrial laundries).[11]
- Apparel and textile waste is a growing issue globally.[1,9,13,20]
    - In the U.S., "textile waste has grown 80% since 2000 and is [the] nation's fastest growing waste stream. [The U.S.] send[s] over 30 billion pounds of textile waste to […] landfills and incinerators annually."[9]
    - In 2020, U.S. textile collection and disposal cost $4 billion and "will likely increase as transportation costs rise and available landfill capacity is reduced."[1]
    - Textile waste is expected to increase by 63% by 2030 due to a growing population and an expanding middle class, which contributes to disposable income for clothing purchases.[8,13]
    - Evidence indicates "more frequently and in increasing volumes, textile waste is moving from high-income countries to low-income countries."[8]
        - In 2020, the U.S. was the largest exporter of used apparel,[9] which often enters the textile waste stream.[13]
    - In December 2024, the U.S. Governmental Accountability Office (GAO) issued a report on federal efforts to address textile waste (GAO-25-107165). The report cited 5 factors for the increase in textile waste in the U.S., including "(1) a shift toward a fast fashion business model; (2) limited, decentralized systems for collecting, sorting, and grading discarded textiles; (3) infancy of textile recycling technologies; (4) increased use of synthetic fibers, such as polyester, and fiber blends, such as cotton-polyester blends; and (5) foreign country bans on the import of used and unsold textiles."[11]
- The U.S. Environmental Protection Agency (EPA) developed a waste hierarchy for municipal solid waste management strategies based on environmental impact.[11] The most preferred option for waste management is reduction, followed by reuse and repair, recycling, energy recovery, and disposal (i.e., landfilling).[10,11]
    - Globally, the majority of discarded apparel and textile articles are incinerated, landfilled, or leaked into the environment.[13]
        - More than 90 million tons of textile waste goes into landfills every year, taking up at least 7% of global landfill space.[20]
    - In the U.S., 85% of discarded textiles go to incineration or landfill and 15% are recovered (i.e., collected by thrift stores, curbside programs, or retail store takebacks).[1,13]
        - Based on 2018 EPA data (the most recent data available), textile material accounted for 5.8% of total municipal solid waste in the U.S.[21] The main source of textile material in municipal solid waste was clothing.[21]

    Additional sources included furniture, carpets, tires, footwear, sheets, and towels.[21]
    - Of recovered textiles, approximately 20% go to the resale market and 80% are sorted and graded.[1] Some unknown percentage of recovered textiles is likely directly exported and sold internationally.[1]
      - Of textiles sorted and graded, 50% are downcycled (i.e., creating product of lower value than the original to use as industrial rag, shoddy, or stuffing); 45% go to domestic and export reuse and resale; 5% are incinerated or landfilled; and <1% go to fiber-to-fiber recycling.[1]

Textile resale

- Historically, thrifting in the U.S. has been associated with both culture[22-26] and social stigma.[22-24] Since 2018, thrifting has been increasing in popularity, especially among younger generations seeking cost-effective, sustainable options to fast fashion.[22,23,25-27]
  - Gen Z consumers (born between the late 1990s and early 2010s), in particular, have embraced thrifting indicating it is cost-effective, sustainable, reduces waste, and resonates with the values of authenticity and ethical consumption.[22,25] Overall, 83% of Gen Z consumers have either purchased or are interested in secondhand apparel.[27]
- A 2022 survey of U.S. adults found that among people who reported purchasing clothing secondhand from a reseller, the most common reasons factoring into their decisions were to save money (65%) and to "get the best bang for my buck" (26%).[24] Additionally, 22% reported buying secondhand as being better for the environment as a contributing factor.[24]
  - People who reported not purchasing clothing secondhand indicated the most common reason being "I don't feel the need to buy clothes secondhand" (32%).[24]
- As of 2025, the U.S. secondhand market is worth an estimated $56 billion, an increase of 14.3% from 2024.[27] Thrift (i.e., nonprofit or charitable organizations selling donated secondhand product) is projected to account for $26 billion (46.4% of the secondhand market).[27] Resale (i.e., for-profit businesses, such as consignment stores, selling secondhand product purchased from sellers) is projected to account for $30 billion (53.6% of the market).[27]
  - Since 2018, the U.S. secondhand market has grown by 143.5%.[27] While most growth has occurred in resale (650% increase), traditional thrift and donation has also grown (36.8% increase) over that timeframe.[27]
  - In 2024, the U.S. secondhand apparel market grew 5 times faster than the broader retail clothing market.[28] Online resale grew 8 times faster than the broader retail clothing sector.[28]
  - Secondhand businesses "face rising operational costs, declining resale margins, and increasing volumes of low-quality items [due to fast fashion], making it harder to sustain viable business models."[29] Businesses have reported "a decline

in the quality of the products they receive, which diminishes their suitability for resale and reduces their selling price."[13]

Textile recycling

- Approximately 95% of textile material that enters the waste stream is either reusable or recyclable.[15]
- The U.S. "has some infrastructure to collect, sort, grade, and recycle textile products; however, the majority of the nearly 15[%] of articles collected in the [U.S.] are sold to low-income regions around the world for resale. Only [1%] of textile waste collected for new end markets goes to fiber-to-fiber recycling. This represents not only a loss of economically valuable material but also has negative social and environmental impacts."[14]
  - Textile recycling in the U.S. would require new infrastructure and workforce skills.[9]
    - Job and economic development opportunities exist in reuse and recycling of apparel and textile articles, including jobs related to clean chemistry and energy, technology, resale, logistics, sorting, repair, recycling, and textile manufacturing.[9]

Washington State

- Textile and Apparel Mills are the 4th largest import industry by monetary value in Washington State.[30] In 2024, the Textile and Apparel Mills industry imported $1,280,000 worth of goods into Washington State (excluding goods passing through Washington State to other states).[30]
- Chapter 70A.205 RCW requires state, county, and city governments to provide for safe waste management, including disposal of apparel and textile articles.[31] There is no specific Washington State law dictating the management of discarded apparel and textile articles.[31]
  - In 2020-2021, Washington State Department of Ecology (Ecology) conducted a statewide study of disposed waste.[32] Ecology estimated that textiles accounted for 4% (about 188,132 tons) of overall statewide disposed waste.[32]
  - Some reuse and repair of discarded apparel and textile articles are managed locally by non-profit and charitable organizations.[31] Some apparel and textile article producers offer reuse and repair opportunities for products they sell.[31]
  - Routine, curbside recycling of apparel and textile articles is not available in any county in Washington State (personal communications, September 2025).[16] However, there are some private businesses that charge a membership fee and provide containers to customers to separate some clothing, shoes, and other textiles for pick-up (personal communication, WSAC, November 2025). In a recent survey of city, county, and Tribal recycling coordinators in Washington State, more than half (55.2%) of respondents reported their jurisdiction participated in textile recovery efforts (unpublished data, Ecology, 2025). Some jurisdictions provide education about where to take used apparel and textile articles, host a collection bin, or implement special programs or events related to

apparel and textile articles (special collection dates, repair events, clothing swap events, etc.) (personal communications, September 2025).

- In 2019, the Recycling Development Center was created within Ecology (RCW 70A.240.030). The Recycling Development Center is responsible for providing or facilitating basic and applied research and development, marketing, and policy analysis to further the development of markets and processing for recycled commodities and products.[33]
- The Washington State Legislature has enacted laws that require EPR programs for 7 types of products, including: 1) electronic products; 2) light bulbs that contain mercury; 3) photovoltaic solar panels; 4) pharmaceuticals; 5) paint; 6) batteries; and 7) packaging and paper products.[16]
    - Ecology is responsible for oversight of the state's EPR programs,[17] with the exception of the Pharmaceutical Stewardship Program, which is overseen by the Washington State Department of Health (DOH).[16]
    - The EPR program for packaging and paper was established in 2025 (E2SSB 5284; Chapter 316, Laws of 2025).[34]
        - Known as the Recycling Reform Act, the new law (Chapter 70A.208 RCW) also includes broader provisions related to recycling in Washington State (none are specific to apparel and textile articles).[34] The Recycling Reform Act directs Ecology to develop statewide recycling collection lists.[34] The lists will allow people to recycle the same materials everywhere in Washington State; enable collection of those items regardless of location or distance from recycling markets; offer recycling services to all households with curbside garbage service; and improve access to drop-off locations for recyclables.[34] The intent of the Recycling Reform Act is to harmonize lists of recyclable materials accepted throughout the state and expand recycling services for people living in rural communities and apartment buildings.[34]
- In 2023, Ecology filed a CR-101 announcing the intention to conduct rulemaking to revise Chapter 173-337 WAC: Safer Products Restrictions and Reporting.[35] The intent of rulemaking is to adopt restrictions and reporting requirements related to the intentional use of per- and polyfluoroalkyl substances (PFAS) in specified products, including apparel and accessories manufactured, distributed, and sold in Washington State.[35] Ecology intends to adopt final rules by June 2028.[35]

Other jurisdictions

- Four countries have implemented an EPR program for apparel and textile articles, including France, Hungary, Latvia, and the Netherlands.[13]
    - In 2008, France enacted the first national EPR program for apparel and textile articles, requiring producers of clothing, linen, and shoes to finance the collection, recycling, and disposal of products.[15,36] By 2020, France's EPR program was collecting 39% of all textiles put on the market.[15] While the program has not yet met the goal to collect 50% of all textiles put on the market by 2022, the program

"had achieved relatively high rates of reuse and recovery of collected and sorted material, significantly outperforming the European average reuse rate."[36]

- In 2020, the European Commission adopted the Circular Economy Action Plan as part of the European Green Deal.[37] The Circular Economy Action Plan included initiatives addressing how products are designed, promoting circular economy processes, encouraging sustainable consumption, ensuring waste is prevented, and ensuring resources remain in the European Union (EU) economy for as long as possible.[37] Multiple legal acts have been adopted under the Circular Economy Action Plan.[37]
    - In 2022, the European Commission adopted the EU Strategy for Sustainable and Circular Textiles.[38] The intent of the strategy was to promote textile producer responsibility and a circular textile industry, including a vision that, "[b]y 2030 textile products placed on the EU market are long-lived and recyclable, to a great extent made of recycled fibres, free of hazardous substances and produced in respect of social rights and the environment."[38]
    - In 2023, the European Commission proposed an amendment to the Waste Framework Directive related to the circularity of textiles.[39] On February 16, 2025, the European Commission reached a preliminary agreement on a proposed amendment, requiring each EU member state to set up its own EPR program for textile and footwear products.[39] Both the European Parliament and the Council on the Targeted Revision of the Waste Framework Directive must formally adopt the revised Waste Framework Directive in order for it to take effect.[39]
        - As of October 2025, there was no exact date for EU member states to implement an EPR program for textiles.[36] However, several EU member states had begun implementing an EPR program for textiles or preparing for compliance.[36]
    - In 2024, the European Commission implemented the Ecodesign for Sustainable Products Regulation (Eco-Design Framework), promoting a circular economy and setting performance rules related to a product's durability, reusability, upgradability, and repairability, among additional requirements.[40]
- In the U.S., Article S8.C3.7.1 of the U.S. Constitution, known as the Dormant Commerce Clause, relates to interstate commerce and has been interpreted by the U.S. Supreme Court "to prohibit state laws that unduly restrict interstate commerce."[41] The law prevents states from discriminating against interstate commerce and from taking actions that unduly burden interstate commerce.[41]
- The 1990 Federal Pollution Prevention Act (42 U.S.C. §13101 et seq.) "focused industry, government, and public attention on reducing the amount of pollution through cost-effective changes in production, operation, and raw materials use."[42] The Pollution Prevention Act specified that "source reduction is fundamentally different and more desirable than waste management or pollution control."[42]
- [Executive Order 14057](https://) (2021), Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability Efficient Federal Operations, set federal agency collection targets to reduce waste and pollution, including by supporting markets for recycled products and

promoting transition to a circular economy. Executive Order 14057 cited clothing as a material of importance.[9]
    - Executive Order 14057 was revoked on January 20, 2025, by Section 2 of Executive Order 14148 (2025).
- Beginning November 2022, Massachusetts banned textiles from disposal or transport for disposal.[20]
- U.S. Congress has initiated work on apparel and textile reuse and recycling.
    - In October 2023, the U.S. Senate Recycling Caucus held a roundtable to explore opportunities for textile recycling, resale, repair, and reuse in the U.S.[14]
    - In March 2024, Senator Cassidy (R-LA) introduced S. 3878, A bill to establish a regional trade, investment, and people-to-people partnership of countries in the Western Hemisphere to stimulate growth and integration through viable long-term private sector development, and for other purposes (Americas Act). Chapter 3 of the Americas Act related to textiles and apparel. In addition to other provisions related to apparel and textile articles, the bill proposed grants and loans for persons seeking to carry out programs to reuse or recycle apparel, footwear, accessories, and household items (i.e., "textiles"), including: textiles that are no longer wanted by an individual after purchase or cannot be sold by a business through retail; recycled secondary textile raw materials and fibers; or recycled finished textile products.[43]
    - In June 2024, Representatives Pingree (D-ME), Glusenkamp Perez (D-WA), and Kamlager-Dove (D-CA) announced the creation of the Congressional Slow Fashion Caucus to support a circular economy for textiles and curb fast fashion pollution through climate-smart policies.[44]
    - In February 2025, Representative Casten (D-IL) introduced H.R. 1239, to direct U.S. EPA to establish a voluntary sustainable apparel labeling program.[45]
    - In March 2025, Representatives Espaillat (D-NY) and Rouzer (R-NC) announced the creation of the bi-partisan House Textile Caucus for the 119th Congress.[46] The intent of the Congressional Textile Caucus is to support policy to protect the U.S. textile industry, advocate for fair trade, and support U.S. cotton growers.[46]
    - In June 2025, Representatives Kamlager-Dove (D-CA) and Malliotakis (R-NY) announced the creation of the bi-partisan Recommerce Caucus focused on expanding the economy to grow and sell pre-owned, refurbished, and secondhand goods.[47]
- In 2025, the federal administration imposed substantial tariff increases on goods imported into the U.S.[30]
    - Since "a large portion of U.S. clothing and footwear is imported, […] tariffs will directly raise the cost of those goods. Retailers will likely pass these additional costs onto consumers, resulting in steady price growth across" clothing and footwear items.[30] The Washington State Office of Financial Management (OFM) predicts clothing prices may increase in the state as a result of federal tariffs, disproportionately impacting families with low and middle income.[30] While OFM estimates the state's Textile and Apparel Mills industry may experience some

gain in output sales, job growth, and wages between 2025 and 2029, suggesting a potential shift toward domestic production in response to higher import costs, "these increases are not enough to offset losses in heavily trade-exposed sectors."[30]
    - On July 30, 2025, the federal administration issued an executive order closing the "de minimus loophole" threshold for imports into the U.S. The U.S. Tariff Act of 1930 exempted imports under a specified dollar amount from import tariffs and taxes.[48] In 2016, the specified dollar amount for the exemption was raised from $200 to $800.[48] This change allowed overseas direct-to-consumer online retailers to bypass U.S. customs inspections and fees and increased the volume of low-cost, low-quality products entering the U.S. (personal communications, August-October 2025).[4,48] The 2025 executive order subjects all goods, regardless of dollar amount or country of origin, to be subject to import fees into the U.S.[48] The executive order went into effect on August 29, 2025.[48]
- As of August 2025, 35 states and the District of Columbia had enacted 146 EPR laws covering 21 product categories.[15,18] The most common EPR programs addressed electronics, mercury thermostats, batteries, pharmaceuticals, paint, fluorescent lighting, and mattresses.[18] Each EPR program is unique due to differences in supply chains, producer composition, etc. (personal communications, September-October 2025).
    - In 2024, California passed the Responsible Textile Recovery Act (Senate Bill 707; Chapter 20.5, Statutes of 2024), creating the first statewide EPR program for textiles.[15,49] Producers of covered textile articles and apparel products must form and join a Producer Responsibility Organization (PRO).[49] The governing body of any proposed PROs must submit an application to the California Department of Resources Recycling and Recovery (CalRecycle) by January 1, 2026.[49]

Summary of SHB 1420

Full details about provisions of this bill can be found in the bill text linked above. Given the large number of provisions, this summary only highlights sections relevant to this review.

- Requires Ecology to implement, administer, and enforce an EPR program for covered apparel and textile articles.
    - Defines:
        - "Apparel" to mean clothing and accessory items intended for regular wear or formal occasions and outdoor activities.
            - "Apparel" includes undergarments, shirts, pants, skirts, dresses, overalls, bodysuits, costumes, vests, dancewear, suits, saris, scarves, tops, leggings, school uniforms, leisurewear, athletic wear, sports uniforms, swimwear, formal wear, onesies, bibs, footwear, handbags, backpacks, knitted and woven accessories, jackets, coats, snow pants, ski pants, and everyday uniforms for workwear.
            - "Apparel" does not include personal protective equipment (PPE); PPE or clothing items for use by the U.S. military; or reusable products designed to collect and absorb urine and feces or menstruation or vaginal discharge.

        - "Textile article" to mean items customarily used in households or businesses made entirely or primarily from a natural, artificial, or synthetic fiber, yarn, or fabric.
            - "Textile article" includes blankets, curtains, fabric window coverings, knitted and woven accessories, towels, tapestries, bedding, tablecloths, napkins, linens, and pillows.
            - "Textile article" does not include single-use products.
        - "Producer" to mean:
            - (i) a person who manufactures a covered product and owns or is the licensee of the brand or trademark under which that covered product is introduced in or into the state;
            - (ii) If there is no person who meets (i), then a producer is the owner of a brand or trademark or, if the owner is not in the state, is the person holding exclusive right to use a trademark or brand in the state in connection with the manufacture, sale, or distribution for sale in or into the state of the covered product (i.e., the exclusive licensee);
            - (iii) If there is no person who meets (i) or (ii), then a producer is the person that imports the covered product into the state for sale or distribution;
            - (iv) If there is no person who meets (i), (ii), or (iii), then a producer is the distributor, retailer, or wholesaler who sells a product in or into the state; or
            - (v) Is a person who has mutually signed an agreement with a producer as defined in (i), (ii), (iii), or (iv) that contractually assigns responsibility to the person as a producer, and the person has joined a PRO for that covered material.
            - "Producer" does not include:
                - Sellers of only secondhand covered products; or
                - Sellers with less than $1 million in annual aggregate global turnover, calculated based on specified criteria and adjusted annually for inflation based on the consumer price index for urban wage earners.
    - Requires Ecology to adopt any necessary rules by December 31, 2027, following specified requirements.
    - Allows Ecology to impose civil penalties in specified amounts and certain enforcement actions for violation of this chapter, following specified procedures.
- Requires producers of covered apparel and textile articles to register with Ecology or join a PRO that registers with Ecology on behalf of producers by January 1, 2027.
    - Defines:
        - "Producer Responsibility Organization (PRO)" to mean an organization formed for the purpose of implementing a plan addressing covered products to meet the requirements of this chapter and is approved by Ecology.

        - “Plan” to mean a plan developed by a PRO for the collection, transportation, repair, recycling, and safe and proper management of covered products that meets specified criteria.
    - Requires Ecology to approve a PRO that meets specified requirements by March 1, 2027, and states Ecology may approve multiple PROs after January 1, 2036.
    - Requires a PRO, by March 1, 2028, to prepare, cover the costs of, submit to Ecology, and update at least every 5 years, a needs assessment addressing 13 specified categories of topics.
    - Requires a PRO, with certain requirements, to: 1) By January 1, 2029, prepare, develop, and submit to Ecology for approval a plan that includes specified components for the collection, transportation, repair, sorting, recycling, and the safe and proper management of covered apparel and textile articles in Washington State; 2) By January 1, 2031, have a plan approved by Ecology; 3) By April 1, 2031, begin implementation of an approved plan; 4) By January 1, 2032, fully implement an approved plan; and 5) Review the plan every 5 years. Outlines additional specific responsibilities of a PRO.
- Requires producers of apparel to annually disclose specified information to Ecology beginning January 1, 2027, including the presence of specified chemicals in covered products and environmental impact activities. Producers of apparel whose worldwide gross income exceeds $100 million must disclose additional specified information to Ecology.

Health impact of SHB 1420
Evidence indicates that SHB 1420 would result in Ecology implementing, administering, and enforcing an EPR program for covered apparel and textile articles and a PRO registering with Ecology, conducting a needs assessment, and submitting and implementing a plan, which would likely increase public awareness and increase collection of covered apparel and textile articles. It is unclear how increased collection may impact reuse and recycling of apparel and textile articles.

Pathway to health impacts
The potential pathway leading from provisions of SHB 1420 to health and equity are depicted in Figure 1. We have made informed assumptions that requiring producers of covered apparel and textile articles to register with Ecology or join a PRO that registers with Ecology on behalf of producers would result in some producers of covered apparel and textile articles registering with Ecology or joining a PRO that registers with Ecology and in Ecology approving a PRO that meets specified requirements. We have also made the informed assumption that Ecology approving a PRO would result in a PRO submitting a needs assessment addressing 13 specified categories of topics. These assumptions are based on provisions of the bill and information from key informants.

We have made the informed assumption that granting authority to and requiring Ecology to adopt rules to implement, administer, and enforce an EPR program for covered apparel and textile articles would result in Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles. We have made informed assumptions that a PRO submitting a needs assessment and Ecology conducting rulemaking would result in a PRO submitting and fully implementing a plan that meets specified requirements. These assumptions are based on provisions of the bill and information from key informants.

We have made an informed assumption that a PRO submitting and fully implementing a plan would increase public education and awareness. This assumption is based on provisions of the bill, evidence related to recycling, and information from key informants. There is a fair amount of evidence that increasing public education and awareness would likely increase collection of apparel and textile articles for reuse and recycling.[50-55]

There is unclear evidence how increased collection of apparel and textile articles for reuse and recycling may impact reuse and recycling of apparel and textile articles. There is limited research on the impacts of EPR programs for apparel and textile articles, and there is currently little to no large-scale reuse or recycling infrastructure to process apparel and textile articles. Since it is unclear how provisions may impact reuse and recycling of apparel and textile articles, the pathway to health and equity could not be completed.

Scope

Due to time limitations, we only researched the most linear connections between provisions of the proposal and health and equity and did not explore the evidence for all possible pathways. For example, we did not evaluate potential impacts related to:

- Local jurisdictions. SHB 1420 allows cities, counties, and other political subdivisions that provide solid waste collection services to participate in an EPR program for apparel and textile articles if they choose.[31] SHB 1420 requires a PRO to include in their plan how a local jurisdiction or federally-recognized Tribe can request to be a collection site and participate as a collection site for apparel and textile articles. Local jurisdictions currently lack funding, staffing, and infrastructure to collect, sort, and recycle apparel and textile articles (personal communication, WSAC, September 2025). In a recent survey of city, county, and Tribal recycling coordinators in Washington State, more than half (55.2%) of respondents reported their jurisdiction participated in textile recovery efforts (unpublished data, Ecology, 2025). Some jurisdictions provide education about where to take used apparel and textile articles, host a collection bin, or implement special programs or events related to apparel and textile articles (special collection dates, repair events, clothing swap events, etc.) (personal communications, September 2025). Key informants stated that an EPR program for apparel and textile articles may reduce costs to local jurisdictions currently implementing or funding these programs (personal communication, WSAC, September 2025). However, key informants stated that impacts of SHB 1420 would likely vary depending on whether a jurisdiction participates as a collection site, receives reimbursement from a PRO for participating as a collection site, or has administrative obligations for reporting to a PRO (personal communications, September 2025). Since local jurisdictions may choose whether to participate in an EPR program for apparel and textile articles and since SHB 1420 does not change authority or responsibility for local jurisdictions, this Health Impact Review did not explore how bill provisions may impact local solid waste management and recycling decisions or practices.

- Tribes and Tribal communities. SHB 1420 requires a PRO to include in their plan how a federally-recognized Tribe can request to be a collection site and participate as a collection site for apparel and textile articles. Key informants stated that SHB 1420 should allow all Tribes to participate in an EPR program for apparel and textile articles and should not limit participation to federally-recognized Tribes (personal communication, King County Solid Waste Division [KC SWD], September 2025). Since Tribes may choose whether to participate in an EPR program for apparel and textile articles, this Health Impact Review did not explore how bill provisions may impact Tribes or Tribal communities.
- Funding and costs for producers. SHB 1420 requires a PRO to include in their plan methods to establish and administer a means for fully funding all administrative, education and outreach, operational, and capital costs associated with establishing and implementing an EPR program for apparel and textile articles. Funding a PRO must be in a manner that distributes costs among participating producers, reflects sales volumes of participating producers, and incentivizes design choices that facilitate reuse, repair, and recycling of products. SHB 1420 specifies that a PRO may not use collected funds to pay administrative penalties, appeal enforcement actions, fund litigation, or pay for lobbying. Key informants from California stated that potential producers have asked questions about funding structures and ways to ensure a PRO develops a fair funding scheme (personal communication, California Product Stewardship Council [CPSC], September 2025). Generally, EPR programs increase the cost for producers of covered products.[19] Key informants stated that provisions of SHB 1420 may have different impacts by business size (personal communication, Association of Washington Business [AWB], September 2025). Some key informants stated that SHB 1420 may negatively impact small, Washington State-based businesses, including women- and minority-owned small businesses (personal communication, AWB, September 2025). For example, compared to small businesses, larger multi-national businesses may have staff dedicated to sustainability and greater fiscal resources to shift to meet new compliance and reporting requirements (personal communications, September-October 2025). Therefore, while all businesses may experience costs if SHB 1420 were to pass, some key informants suggested that small businesses may have higher or additional costs to meet requirements of SHB 1420 and may need to raise the cost of products more than larger businesses, which could pass costs to consumers and impact sales or revenue (personal communications, September-October 2025). Key informants stated SHB 1420 could create barriers to growing Washington's economy (personal communications, September 2025). However, EPR programs may also be "an opportunity to align sustainability with economic growth."[29] Some key informants stated that SHB 1420 could benefit small businesses by creating a market and job opportunities in collecting, sorting and grading, and reuse and repair (personal communications, September 2025). EPR programs in California have a history of job creation, and the infrastructure necessary to collect, sort, and recycle textiles may boost domestic manufacturing and job opportunities.[29,56] Job and economic development opportunities exist in reuse and recycling of apparel and textile articles, including jobs related to clean chemistry and energy, technology, resale,

logistics, sorting, repair, recycling, and textile manufacturing (personal communications, August-October 2025).[9,29] This Health Impact Review did not explore potential costs or funding impacts of an EPR program for apparel and textile articles for producers.

- Costs for consumers. Generally, EPR programs increase the cost of covered products for consumers.[19] SHB 1420 states that retailers, producers, or a PRO may not charge a specific point-of-sale fee to consumers to cover the administrative or operational costs of a PRO or EPR program. While this would prevent a specific charge related to an EPR program from appearing on a sales receipt, key informants stated that SHB 1420 would likely raise prices for apparel and textile articles in Washington State (personal communications, August-October 2025). It is not possible to predict the degree to which SHB 1420 may affect the cost of apparel and textile articles for Washingtonians. Clothing is a price sensitive (i.e., elastic) good, and cost increases disproportionately impact families with low and middle income.[30] Key informants stated that cost increases may impact affordability and access to apparel and textile articles for some consumers in Washington State (personal communications, September 2025). Some key informants also stated that an EPR program for apparel and textile articles may create a larger supply of secondhand products available for resale, which could benefit communities with lower economic wealth by providing additional affordable options (personal communications, KC SWD, September 2025). However, secondhand businesses "face rising operational costs, declining resale margins, and increasing volumes of low-quality items,"[29] and the price of secondhand items has been increasing over time (personal communication, The Rag Mine, October 2025). This Health Impact Review did not evaluate how an EPR program for apparel and textile articles may impact consumer prices.
- "Third-party sellers" and "online marketplaces" and potential impacts due to U.S. tariff policies. Key informants stated the impacts of SHB 1420 for third-party sellers and online marketplaces were complex (personal communications, September-October 2025). Section 16 of SHB 1420 specifies online marketplaces must annually notify Ecology and a PRO of all third-party sellers with sales of covered products over $1 million sold on their online marketplace and must not provide information to Ecology if a third-party seller did not have any sales in Washington State in the preceding year. SHB 1420 defines "third-party seller" to mean a person or entity, independent of an online marketplace, who sells, offers to sell, or contracts with an online marketplace to sell a consumer product in the state by or through an online marketplace. SHB 1420 defines "online marketplace" as a consumer-directed, electronically accessed platform that meets specific criteria. Some key informants suggested the definition of "third-party seller" may apply to small businesses and non-profits, especially if they sell through an online marketplace, and could negatively impact these entities (personal communications, August-September 2025). However, some key informants suggested the intent of the definitions was likely to address large direct-to-consumer businesses responsible for a large volume of low-cost, low-quality products entering the U.S. (personal communications, August-October 2025).[48] Key informants stated the definitions address the potential direct-to-consumer, "de minimus loophole" threshold at the federal level and ensure that smaller purchases not registered or recorded through U.S. customs would be covered by an EPR program (personal communications, August-October 2025). The July 30, 2025, executive order closed this "de minimus loophole" for imports into the U.S. by

subjecting all goods, regardless of dollar amount or country of origin, to import fees into the U.S.[48] This Health Impact Review did not evaluate potential impacts for third-party sellers and online marketplaces or potential impacts due to U.S. tariff policies.

- Producers outside of Washington State, including internationally. The textile industry (inclusive of apparel and household textile articles) is a complex, fragmented, heterogenous, and global industry.[1] Researchers have stated that, globally, current EPR programs and policies do not extend beyond any country's borders, "diminishing EPR's potential to collect and manage discarded textiles in countries where they ultimately end up" and limiting the potential for a global circular economy.[13] The majority of apparel and textile articles sold in Washington State are not produced in Washington State (personal communication, Ecology, August 2025). Further, 97% of apparel sold in the U.S. is manufactured outside the U.S.[2,4] Washington State does not have authority or jurisdiction to regulate producers outside of Washington State, and interstate commerce restrictions prohibit states from discriminating against interstate commerce and from taking actions that unduly burden interstate commerce.[41] SHB 1420 grants authority to Ecology to regulate entities that introduce apparel and textile articles into Washington State. This Health Impact Review did not evaluate whether regulating entities that introduce apparel and textile articles into Washington State may have additional impacts for producers outside Washington State, including internationally.
- Environmental and health impacts outside of Washington State, including internationally. Since Washington State does not have large apparel and textile article manufacturing sectors, environmental and health impacts related to textile production (cotton production, garment dying, etc.) would likely not occur in Washington State (personal communications, August-September 2025). It is well-documented that the apparel and textile industries, including manufacturing, production, and waste management, negatively affect health and environmental outcomes, particularly in the Global South (personal communications, August-October 2025).[57] Some apparel and textile articles that are not reused in the U.S. may be exported to countries in the Global South that may or may not have waste management capacities or sanitary landfills (personal communications, August-October 2025).[13] Shifting waste overseas (i.e., waste colonialism) negatively impacts human health and the environment (personal communications, September 2025).[10,13] Moreover, workers in the used clothing trade in importing countries are disproportionately women and typically lack workplace protections, are exposed to hazardous work conditions, and receive low income.[13] Some key informants stated that it may be more environmentally responsible to landfill apparel and textile articles in Washington State until recycling infrastructure exists, rather than increase exports (personal communications, September 2025). Many key informants noted that Washington State does not have authority or jurisdiction to regulate industries outside the state and SHB 1420 may not shift apparel and textile article exports, which may not address health and environmental concerns in the Global South (personal communications, September-October 2025). Since Health Impact Reviews focus on health and equity impacts for people who live in Washington State, this analysis did not focus on potential environmental and health impacts for communities outside of Washington State, including internationally.

- Non-regulatory supports for an EPR program for apparel and textile articles. Supports outside EPR legislation and the EPR regulatory structure may contribute to successful implementation of an EPR program for apparel and textile articles.[19] Non-regulatory supports may include education around reduced consumption; technology to prepare for reuse (e.g., label technology to assist with reuse and recycling); tax credits for businesses operating in areas participating in an EPR program; alternative capital (e.g., grants, low-interest loans); education support; trade laws; workforce development programs; and sales and use tax exemptions for secondhand products.[11,12,19,29] In addition, EPR programs often do not "provide financial support for collectors, sorters, and reverse supply chain partners."[29] Incentives for collectors, sorters, and reverse logistics businesses ensures supports at all steps of the EPR process, not only for producers.[29] Key informants stated investment and support programs for businesses supporting textile recycling would be necessary to make the process more economically viable, including programs that encourage the concentration of infrastructure, provide support to separate product from landfills, and incentivize reduced landfilling (personal communication, Accelerating Circularity, October 2025). Since these supports are not included in SHB 1420, this Health Impact Review did not evaluate how non-regulatory supports may contribute to the implementation for an EPR program for apparel and textile articles in Washington State.
- Peer-to-peer secondhand sales. There are multiple ways people sell secondhand items, including online marketplaces, online resale and buy-nothing sites, swaps, garage and estate sales, etc. (personal communications, August-October 2025). The definition of "producer" in SHB 1420 would exempt sellers that sell only secondhand covered products and sellers with less than $1 million in annual aggregate global turnover as adjusted annually for inflation. Therefore, this Health Impact Review did not evaluate how SHB 1420 may affect peer-to-peer secondhand sales.
- Eco-modulation. EPR programs are intended to incentivize innovations in product design and minimize environmental impacts.[18] Ecology stated that EPR policy "provides incentives for manufacturers to incorporate environmental considerations into the design of their products and packaging, often called eco-modulation, [and] would encourage the phasing out of materials that are disruptive to recycling infrastructure, harmful in the environment, and/or hard-to-recycle."[58] Moreover, a PRO may choose to adjust an EPR program's fee structure "based on sustainable design choices such as incorporating recycled content, designing for durability, and recyclability that increases the environmental performance of a garment."[29] SHB 1420 would also require a PRO to include in a plan strategies to address design challenges, including composability; reduction and removal of harmful chemicals; microfiber and microplastic shedding; and mixed material blends. Key informants stated an EPR for apparel and textile articles may drive circularity through eco-modulation, if eco-modulation is implemented in a way that incentivizes the use of mono-materials or natural fibers (which can be more recyclable than synthetics) and increases the use of recycled content in production (personal communications, August-October 2025). For example, if an EPR program for apparel and textile articles increases consumer and brand demand for recycled material and reduces the cost of recycled products, brands may shift to manufacturing and producing garments and textile articles with recycled content, which could further drive demand for recycled

material (personal communication, Accelerating Circularity, October 2025). Other key informants suggested eco-modulation, depending on how it is implemented, may incentivize the removal of harmful chemicals from manufacturing processes (personal communications, August-October 2025). This Health Impact Review did not evaluate the potential for eco-modulation if an EPR program for apparel and textile articles were created in Washington State.

Magnitude of impact
SHB 1420 has the potential to impact consumers and businesses that meet the definition of "producer" in Washington State.

Since SHB 1420 would apply to covered apparel and textile articles introduced into Washington State, implementation of SHB 1420 may affect all consumers in the state who purchase apparel and textile articles.

SHB 1420 includes a tiered or waterfalled definition of "producer" (personal communications, August-September 2025). Key informants stated that the tiered nature of the definition of "producer" in SHB 1420 makes it unclear how many or which businesses may meet the definition of "producer" (personal communications, August-September 2025). Moreover, the definition of "producer" permits a person who has mutually signed an agreement with a producer to assume responsibility and join a PRO. Key informants stated it is not possible to predict in which circumstances a person may sign an agreement with a producer and, therefore, not possible to rely on any list or dataset to determine how many or which businesses may meet the definition of "producer" (personal communications, September 2025).

Key informants also stated that SHB 1420 could apply to businesses outside the apparel and textile industries (personal communications, August-September 2025). For example, many retailers sell apparel products (e.g., shirts, hats, bags) or textile articles (e.g., towels) even if apparel and textile articles are not their primary business (personal communications, August-September 2025). Key informants stated that businesses like food establishments, grocery stores, convenience stores, pet stores, and hardware stores may also be impacted by SHB 1420 due to certain products sold (e.g., grocery tote bags, shop or kitchen towels, pet bedding, stuffed animals/toys, seasonal items) (personal communications, August-September 2025). Therefore, key informants stated it is not possible to estimate how many or which businesses may be impacted by looking at industry subsectors (personal communications, August-October 2025).

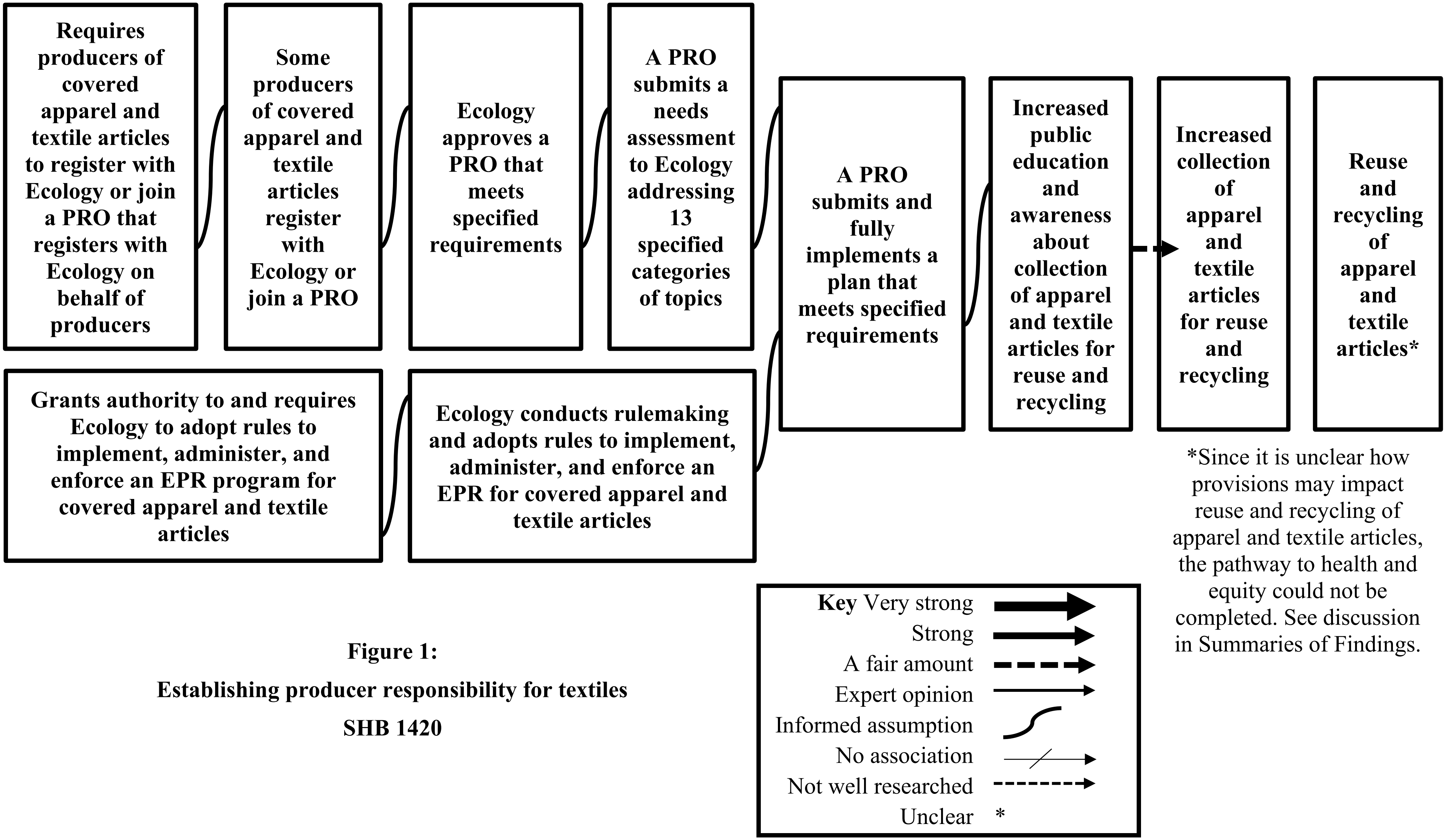
Key informants also noted the definition of "producer" in SHB 1420 does not match the definition of producer in other areas of state law, including other EPR programs (personal communications, September 2025), and so it is not possible to use an existing list of producers to determine which businesses may meet the definition of "producer" in SHB 1420.

While it is not possible to estimate how many or which businesses may meet the definition of "producer" in SHB 1420, key informants generally stated that SHB 1420 has the potential to impact most businesses in Washington State (personal communications, September-October 2025). Data from the Washington State Employment Security Department (ESD) indicated that in 2024 there were 226,371 total business establishments in Washington State.[59] The majority of establishments were located in Clark, King, Pierce, Snohomish, and Spokane Counties.[59] There were 19,286 retail trade establishments; 12,582 wholesale trade establishments; 7,837 manufacturing establishments; 5,802 transportation and warehousing establishments; and 746 establishments for the management of companies and enterprises.[59]

More granular data are available by retail and manufacturing industry subsectors. Specific to apparel and textile establishments, there were 1,900 clothing, clothing accessories, shoe, and jewelry retailers; 123 textile product mills; 87 apparel manufacturers; and 27 textile mills in Washington State in 2024.[59] Textile and Apparel Mills are the 4th largest import industry by monetary value in Washington State.[30] In 2024, the Textile and Apparel Mills industry imported $1,280,000 worth of goods into Washington State (excluding goods passing through Washington State to other states).[30]

Overall, SHB 1420 has the potential to affect consumers and businesses that meet the definition of “producer” in Washington State.

Logic Model



*Since it is unclear how provisions may impact reuse and recycling of apparel and textile articles, the pathway to health and equity could not be completed. See discussion in Summaries of Findings.

Figure 1:

Establishing producer responsibility for textiles

SHB 1420

Summaries of Findings

Would requiring producers of covered apparel and textile articles to register with Washington State Department of Ecology (Ecology) or join a Producer Responsibility Organization (PRO) that registers with Ecology on behalf of producers result in some producers of covered apparel and textile articles registering with Ecology or joining a PRO that registers with Ecology?

We have made the informed assumption that requiring producers of covered apparel and textile articles to register with Ecology or join a PRO that registers with Ecology on behalf of producers would result in some producers of covered apparel and textile articles registering with Ecology or joining a PRO that registers with Ecology. This assumption is based on provisions of the bill and information from key informants, including key informants from Ecology, California, federal and state associations representing potential producers, and organizations with expertise in circular economies and apparel and textile articles.

SHB 1420 would require producers of covered apparel and textile articles to register with Ecology or join a PRO that registers with Ecology on behalf of producers by January 1, 2027. SHB 1420 would require an entity registering with Ecology as a PRO to be responsible for determining which businesses meet the definition of "producer" and, therefore, which businesses must register with Ecology or join a PRO by January 1, 2027 (personal communication, Ecology, September 2025). This determination must occur prior to a PRO registering with Ecology, since a PRO registers on behalf of member producers (personal communication, Ecology, September 2025). This process would occur prior to Ecology approving a PRO that meets specified requirements by March 1, 2027, suggesting that the apparel and textile industries would need to work with a potential PRO prior to approval of a PRO.

Ecology anticipates a need to provide technical assistance and respond to questions from a potential PRO immediately following bill passage.[31] The California Department of Resources Recycling and Recovery (CalRecycle) began responding to questions from interested parties, including potential producers and potential PROs, immediately following the passage of SB 707 (California's Responsible Textile Recovery Act) (personal communication, CalRecycle, September 2025). Interested parties had questions about which businesses met the definition of "producer", what products met the definition of "covered products", acceptable recycling processes, regulatory processes, etc. (personal communication, CalRecycle, September 2025). Key informants from CalRecycle noted that more information will become available once a PRO is selected, the needs assessment is conducted, the rulemaking processes is complete, the PRO plan is developed, and implementation is further in progress (personal communication, CalRecycle, September 2025).

SHB 1420 would permit Ecology, if needed, to pursue compliance and enforcement actions with producers identified by a PRO who are not registered with a PRO or Ecology upon approval of a plan or by January 1, 2031, whichever is sooner. The bill would also allow Ecology to impose civil penalties in specified amounts and certain enforcement actions for violation of this chapter, following specified procedures. In the fiscal note for SHB 1420, Ecology "assumes some enforcement efforts would be required to ensure regulated producers join a PRO."[31] Key informants also noted that some enforcement would likely be needed to encourage producers to register with Ecology or join a PRO (personal communication, American Circular Textiles, August 2025). To ensure compliance, key informants stated any penalties for non-compliance (e.g., fees) would need to be greater than the cost of joining and participating in a PRO (personal communication, American Circular Textiles, August 2025). Since the cost of joining a PRO and participating in an EPR program for apparel and textile articles would be determined by a PRO, it is not possible to estimate potential costs for producers and whether enforcement fees would be sufficient to encourage compliance (personal communication, American Circular Textiles, August 2025).

A 2025 survey of the top 50 U.S. fashion retailers and brands found that 66% of retail executives reported struggling to manage textile waste.[28] Similarly, 78% of retail executives stated "it's important to explore innovative business models like resale that drive circularity."[28] Key informants from federal and state associations representing potential producers stated that some producers may be supportive of EPR programs, may support EPR programs created with industry feedback (including identified and potential producers representing a range of industry views), and may have an interest in an EPR program for apparel and textile articles (personal communications, August-October 2025). Producers have expressed 5 main interests in an EPR program for apparel and textile articles, including scalability, antitrust, profitability, climate action, and stewardship (personal communications, August-October 2025).

One of the largest barriers to textile circularity is the investment gap.[8] Financing large-scale circular economies is challenging, and an EPR program can help develop and finance a circular economy for apparel and textile articles (personal communication, American Apparel & Footwear Association [AAFA], October 2025). Some key informants noted that EPR programs, if able to operate large-scale infrastructure for collection, can make it more cost-effective and efficient for producers to participate in a circular economy (personal communication, AAFA, October 2025).

Producers are also interested in discussing how to develop and finance a circular economy (personal communication, AAFA, October 2025). However, due to antitrust laws that prohibit monopolies and other practices restricting trade,[60] it is challenging for producers and industry players to discuss developing and financing a circular economy outside of an EPR structure (personal communication, AAFA, October 2025). An EPR program would allow industry players to have conversations about financing and implementing circular economies in a way that does not violate antitrust laws (personal communication, AAFA, October 2025). Specifically, producers that meet the definition in SHB 1420 and a PRO acting on behalf of producers are immune from state laws relating to antitrust, restraint of trade, unfair trade practices, and other regulation of trade and commerce for the purpose of planning, reporting, and operating an EPR program for apparel and textile articles, following certain criteria.

Key informants spoke about potential profitability from an EPR program in several ways. Some key informants stated participating in an EPR program for apparel and textile articles could be a competitive advantage for certain products (e.g., outdoor wear) or in certain markets within Washington State where companies and consumers may share priorities related to sustainability and climate action (personal communication, Association of Washington Business [AWB], September 2025). Some key informants also stated brands that invest in research and product design are interested in having their product returned to them to maintain their investment in research and materials (personal communication, AAFA, October 2025).

Additionally, some brands are interested in reselling apparel and textile items to profit from one product multiple times (personal communication, AAFA, October 2025). For example, 72% of retail executives surveyed in 2025 reported "seeking new ways to extend the life cycle of garments through programs like resale, upcycling [(i.e., making new garments or products with materials from waste)], and repair.[28] Of those, 36% are doing [so] in response to new regulation around managing textile waste."[28] In addition to seeing resale as a new revenue stream, retailers may also see resale as a way to stay competitive and acquire new customers.[28] A 2025 survey of U.S. adults age 18 years and older found that 41% of consumers say brands should take back unwanted or used apparel, with a higher percentage of younger generations (55%) supporting the concept.[28]

Many brands also have sustainability and climate action goals, and an EPR program for apparel and textile articles may help some brands meet these goals (personal communications, October 2025). Globally, the apparel sector is one of the most polluting and natural resource-intensive industries.[9] Estimates suggest the fashion industry accounts for 10% of global greenhouse gas (GHG) emissions.[9,14,15] Keeping a clothing item in circulation (i.e., increasing the use of a clothing item or the number times an item is worn during its lifespan) and purchasing a used clothing item can reduce the carbon footprint of the apparel sector.[9] Estimates suggest purchasing a used clothing item can reduce its carbon footprint by over 70%, including by offsetting the need for manufacturing a new item.[9] In 2025, 48% of retail executives surveyed reported "leadership has deprioritized circular business models like resale because social, environmental, and governance is not important enough to their customers"; however, 56% of younger generations stated "fashion brands and retailers are not doing enough to improve their sustainability practices."[28]

Since SHB 1420 would require a PRO to prioritize reuse and repair of collected covered products, joining a PRO may help some producers in their efforts to achieve sustainability and climate action goals. SHB 1420 would also require a plan submitted by a PRO to include strategies to address design challenges, including composability; reduction and removal of harmful chemicals; microfiber and microplastic shedding; and mixed material blends. An EPR for apparel and textile articles may drive circularity through eco-modulation (which incentivizes innovations in product design and minimizes environmental impacts[18]) if eco-modulation is implemented in a way that incentivizes the use of mono-materials or natural fibers (which can be more recyclable than synthetics) and increases the use of recycled content in production (personal communications, August-October 2025). Depending on how eco-modulation is implemented, participating in an EPR could allow a brand to market or promote preferred material and sustainability programs (personal communications, August-October 2025). See "Scope" for additional discussion of eco-modulation.

Lastly, some key informants shared that fashion design has an element of art, emotionality, and self-expression (personal communications, October 2025). Brands design apparel and textile articles with the intention that they are worn and used, not with the intention for products to be landfilled (personal communication, AAFA, October 2025). Some key informants stated this artistic element may be another motivator for some brands to participate in an EPR program or circular economy (personal communication, AAFA, October 2025).

Therefore, we have made the informed assumption that, if SHB 1420 were to pass, some producers of covered apparel and textile articles would likely register with Ecology or join a PRO that registers with Ecology.

Would some producers of covered apparel and textile articles registering with Ecology or joining a PRO that registers with Ecology result in Ecology approving a PRO that meets specified requirements?

We have made the informed assumption that producers of covered apparel and textile articles registering with Ecology or joining a PRO that registers with Ecology would result in Ecology approving a PRO that meets specified requirements. This assumption is based on provisions of the bill and information from key informants, including key informants from Ecology, California, and federal and state associations representing potential producers.

Ecology must approve a PRO that meets the requirements of SHB 1420 and that: 1) has a governing board consisting of producers that are diverse in size and type and represent the diversity of covered products and 2) demonstrates it has adequate financial responsibility and financial controls in place to ensure proper management of funds. Since requirements for a PRO are specified in SHB 1420, Ecology would not need to conduct rulemaking prior to approving a PRO (personal communication, Ecology, August 2025). Instead, Ecology would rely on bill provisions to determine if a PRO meets specified requirements and to approve a PRO by the specified date (personal communication, Ecology, August 2025).

Evidence from California suggests entities would be interested in forming a PRO (personal communications, September 2025). As of September 2025, multiple entities had expressed interest in potentially registering as a PRO with CalRecycle for California's Responsible Textile Recovery Act (personal communications, September 2025). Potentially interested entities included groups within and outside of California, including state, national, and international organizations (personal communications, September 2025). One entity indicated interest in working with all states that create an EPR program for apparel and textile articles (personal communication, California Product Stewardship Council [CPSC], November 2025). Therefore, if SHB 1420 were to pass, key informants anticipated an entity, or multiple entities, would likely express interest in registering as a PRO for an EPR program for apparel and textile articles in Washington State (personal communications, September-November 2025).

Lastly, SHB 1420 would allow Ecology to approve multiple PROs after January 1, 2036. Key informants stated one PRO would be preferrable, as multiple PROs, without proper coordination, may create different requirements, fee structures for retailers, metrics, and reporting, which may reduce consistency created by a single PRO (personal communications, September 2025).

Therefore, we have made the informed assumption that Ecology would approve a PRO that meets specified requirements by March 1, 2027.

Would Ecology approving a PRO that meets specified requirements result in a PRO submitting a needs assessment addressing 13 specified categories of topics?
We have made the informed assumption that Ecology approving a PRO that meets specified requirements would result in a PRO submitting a needs assessment addressing 13 specified categories of topics. This assumption is based on provisions of the bill and information from key informants, including key informants from federal and state associations representing potential producers.

SHB 1420 would require a PRO to prepare, cover the costs of, submit to Ecology, and update at least every 5 years, a needs assessment addressing 13 specified categories of topics. The initial needs assessment must be submitted to Ecology by March 1, 2028, and must be completed prior to the completion and approval of a plan for covered products. The intent of the statewide needs assessment is to determine necessary steps and investment to achieve the requirements of an EPR program for apparel and textile articles. The needs assessment must address 13 specified categories of topics and collect information to inform the EPR program budget and plan. The assessment must include, among additional categories, information about the scope and scale of covered products diverted to landfill or incineration; the current repair, reuse, recycling, collection, sorting, and hauling system in the state and plans for expanded access; current market conditions; existing state statutory provisions; consumer education needs; consumer behaviors; methods to distribute costs equitably among participating producers; actions and investments needed to provide sufficient infrastructure; availability of existing nonprofit repair and reuse organizations; availability of responsible end markets; investments needed to avoid contamination related to recycling; and fee structures needed to pay all administrative and operational costs associated with establishing and implementing an EPR program for apparel and textile articles.

Some key informants suggested it is unique for a PRO to conduct the needs assessment (personal communication, Washington Retail Association [WRA], September 2025). For example, as part of another EPR program in Washington State, Ecology, rather than a PRO, is responsible for contracting the needs assessment (personal communications, September-November 2025). Key informants stated that a state-led needs assessment may be conducted in collaboration with businesses to ensure information gathered would align with other state programs and address Washington State context (personal communication, WRA, September 2025). However, in other EPR programs, the PRO has been responsible for conducting the needs assessment (personal communication, Ecology, November 2025).

Since SHB 1420 specifies a PRO must complete a needs assessment prior to the completion and approval of a plan and outlines required information, we have made the informed assumption that Ecology approving a PRO that meets specified requirements would result in a PRO submitting a needs assessment addressing 13 specified categories of topics.

Would a PRO submitting a needs assessment addressing 13 specified categories of topics result in a PRO submitting and fully implementing a plan that meets specified requirements?
We have made the informed assumption that a PRO submitting a needs assessment addressing 13 specified categories of topics would result in a PRO submitting and fully implementing a plan

that meets specified requirements. This assumption is based on information from key informants, including key informants from Ecology and city and county solid waste management and recycling programs.

SHB 1420 would require a PRO, with certain requirements, to: 1) by January 1, 2029, prepare, develop, and submit to Ecology for approval a plan that includes specified components for the collection, transportation, repair, sorting, recycling, and the safe and proper management of covered apparel and textile articles in Washington State; 2) by January 1, 2031, have a plan approved by Ecology; 3) by April 1, 2031, begin implementation of an approved plan; 4) by January 1, 2032, fully implement an approved plan; and 5) review the plan every 5 years. The bill outlines additional specific responsibilities of a PRO.

Based on other EPR programs in Washington State, the needs assessment and rulemaking process would likely clarify details, specify requirements, and gather needed information for a PRO to develop and fully implement a plan for an EPR program for covered apparel and textile articles (personal communications, September 2025). There are limited data and research about apparel and textile articles in Washington State (personal communication, Ecology, September 2025). Key informants stated that the needs assessment would help fill data gaps and collect information needed for rulemaking to develop an EPR program for apparel and textile articles (personal communications, September 2025).

For example, SHB 1420 would require each producer or a PRO to provide Ecology a list of brands of covered products that each producer sells, distributes for sale, imports for sale, or offers for sale in or into Washington State no later than 30 days after the effective date of rules adopted by Ecology, and on or before January 15 of each year thereafter. Therefore, the needs assessment would likely provide more detail on the types of apparel and textile articles introduced into Washington State, which could help determine whether the lists of covered products in SHB 1420 are comprehensive (personal communication, Ecology, September 2025). However, SHB 1420 would not require the needs assessment to report on the sales of apparel or textile articles coming into Washington State, which could also provide useful information for developing an EPR program for apparel and textile articles (personal communication, Ecology, September 2025). A PRO would be required to include some of this information in their annual report (e.g., amount of covered products sold in or into Washington State for each producer). Instead, the needs assessment will help fill data gaps and provide more information on the scope and scale of apparel and textile articles that are managed in the state (personal communication, Ecology, September 2025).

The needs assessment would also be used to determine potential infrastructure needs to collect, sort, grade, or recycle apparel and textile articles (personal communications, September 2025). SHB 1420 would require the needs assessment to include actions and investments necessary to provide sufficient access to collection, recycling, composting, processing, and transportation to responsible and economically viable end markets. Key informants stated it would be the responsibility of producers to establish what infrastructure would be needed to support an EPR program and how to finance the development of necessary infrastructure (personal communications, September-October 2025).

Additionally, a national report stated a needs assessment can "ensure EPR policies are grounded in real-world conditions" and identify gaps in infrastructure and workforce development necessary to implement an EPR program.[29] For example, "[m]ost EPR programs operate on the assumption that existing collection and recycling systems are already in place, but this is not the case for textiles" as "the textile industry lacks the infrastructure maturity of other material streams" (e.g., plastics).[29] Therefore, a needs assessment should explore topics like "collection accessibility, infrastructure gaps, labor and logistics requirements, end-market demand for reused and recycled materials, and funding mechanisms to support domestic processing capacity."[29]

Since components of the needs assessment inform requirements of the plan, we have made the informed assumption that a PRO submitting a needs assessment would result in a PRO submitting and fully implementing a plan that meets specified requirements.

Would granting authority to and requiring Ecology to adopt rules to implement, administer, and enforce an EPR program for covered apparel and textile articles result in Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles?

We have made the informed assumption that granting authority to and requiring Ecology to adopt rules to implement, administer, and enforce an EPR program for covered apparel and textile articles would result in Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles. This informed assumption is based on provisions of the bill and information from Ecology.

SHB 1420 would require Ecology to adopt any rules necessary to implement, administer, and enforce an EPR program for covered apparel and textile articles. Ecology stated that, based on experience implementing EPR programs for other products, adopting rules related to SHB 1420 would require a 2-year, highly technical rulemaking process.[31]

Since SHB 1420 would require and grants rulemaking authority, and since key informants stated that Ecology would conduct rulemaking if SHB 1420 were to pass (personal communication, August-September 2025), we have made the informed assumption that granting authority to and requiring Ecology to adopt rules to implement, administer, and enforce an EPR program for covered apparel and textile articles would result in Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles.

Would Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles result in a PRO submitting and fully implementing a plan that meets specified requirements?

We have made the informed assumption Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles would result in a PRO submitting and fully implementing a plan that meets specified requirements. This assumption is based on information from key informants, including key informants from Ecology, California, city and county solid waste management and recycling programs, federal and state associations representing potential producers, and organizations with expertise in circular economies and apparel and textile articles.

Based on other EPR programs in Washington State, the needs assessment and rulemaking process would likely clarify details, specify requirements, and gather needed information for a PRO to develop and fully implement a plan for an EPR program for covered apparel and textile articles (personal communications, September 2025). Key informants from Ecology stated that aspects of an EPR program for apparel and textile articles would be further clarified in rulemaking (personal communication, Ecology, September 2025).

Key informants stated that each EPR program is unique, and lessons learned from one EPR program may not be generalizable to another EPR program due to differences in supply chains, producer composition, etc. (personal communications, September-October 2025). However, key informants from CalRecycle stated there are several important components to determine for any EPR program, including: 1) which products are covered products and which products are not; 2) which producers meet the definition of "producer" for the EPR program and which producers do not; and 3) what convenience and other performance standards and metrics are appropriate for the product and how can metrics evolve over time (personal communication, CalRecycle, September 2025). Researchers have also stated that clear, common definitions for covered products and producers, and metrics that reflect national and local context are "crucial to the effectiveness of EPR policy."[13] These components would likely be further clarified in rulemaking (personal communications, September 2025).

Definitions of apparel and textile article

SHB 1420 would define "apparel" to mean clothing and accessory items intended for regular wear or formal occasions and outdoor activities. "Apparel" includes undergarments, shirts, pants, skirts, dresses, overalls, bodysuits, costumes, vests, dancewear, suits, saris, scarves, tops, leggings, school uniforms, leisurewear, athletic wear, sports uniforms, swimwear, formal wear, onesies, bibs, footwear, handbags, backpacks, knitted and woven accessories, jackets, coats, snow pants, ski pants, and everyday uniforms for workwear. SHB 1420 would define "textile article" to mean items customarily used in households or businesses made entirely or primarily from a natural, artificial, or synthetic fiber, yarn, or fabric. "Textile article" includes blankets, curtains, fabric window coverings, knitted and woven accessories, towels, tapestries, bedding, tablecloths, napkins, linens, and pillows.

Key informants offered multiple interpretations of these definitions, and many key informants raised questions about which products would be covered products based on these definitions (personal communications, August-September 2025). Key informants from Ecology stated that rulemaking would likely provide more clarity about what products would meet the definition of "covered products" (personal communication, Ecology, September 2025).

Key informants from Ecology stated that, because the bill contains lists of items in the definitions of "apparel" and "textile article" and does not use the language "including but not limited to", the lists of items may be considered full lists of covered products (personal communication, Ecology, September 2025). Therefore, it may be challenging to amend these lists further during rulemaking (personal communication, Ecology, September 2025).

Other key informants suggested the language "includes" is not exhaustive and therefore the definitions provide examples of which products may be covered (personal communications, August-October 2025). For example, California's Responsible Textile Recovery Act uses the language "only" in the definitions of "apparel" and "textile article" that list covered products, which clarifies what products are covered and not covered (personal communication, CalRecycle, September 2025). Some key informants questioned whether "textile article" would include products made from leather or fur or products like mattresses, carpeting, electronics (e.g., speaker fabric), or upholstered furniture (e.g., sofas) (personal communications, August-September 2025). However, other key informants stated that mattresses, carpeting, electronics, and upholstered furniture may have specific EPR programs or may require specific handling and disposal methods and may not be included in the definitions in SHB 1420 (personal communications, August-September 2025). California's Responsible Textile Recovery Act specifies that "covered product" does not include products covered under other California programs (i.e., Used Mattress Recovery and Recycling Act, Electronic Waste Recycling Act, Product Stewardship for Carpets Law) (personal communication, CalRecycle, September 2025). Washington State does not currently have specific EPR programs for mattresses, carpeting, or upholstered furniture.[16] Key informants stated that definitions in SHB 1420 should explicitly address these products to further clarify what products would be covered in an EPR program for apparel and textile articles (personal communications, August-September 2025).

Key informants also noted that the definitions of "apparel" and "textile article" do not explicitly address post-industrial and pre-consumer material or products (personal communications, August-October 2025). Post-industrial textile waste includes material generated during textile manufacturing,[11] including offcuts from pattern production (i.e., fabric scraps left after a garment is cut out), samples (i.e., garments sewn in the development and testing process), and deadstock material (i.e., fabric leftover from the production process) (personal communications, August-September 2025). Pre-consumer waste includes material discarded before being sold to a consumer, including products that are manufactured but not sold (i.e., overstock, excess product, or product that is damaged or does not meet quality control and is disposed of by a producer before being sold to a consumer) (personal communications, August-September 2025).[11] Key informants stated the definitions of "apparel" and "textile article" do not include fabric, yarn, upholstery, offcuts from pattern production, deadstock material, or products that are manufactured but not sold (personal communications, August-September 2025). Globally, post-industrial and pre-consumer textile waste is estimated to be 41 times the volume of post-consumer textile waste.[12] However, other sources state that post-consumer waste is the largest category of textile waste.[11]

There are established markets for post-industrial and pre-consumer product (personal communication, AAFA, October 2025). For example, deadstock and overstock may be sold for consumer use or to reuse and repair businesses (personal communications, August-September 2025). Post-industrial and pre-consumer products are often more appropriate for reuse, resale, or recycling since products may have manufacturer tags and labels and may be in better overall condition (e.g., unstained, unworn) (personal communications, August-October 2025). Post-consumer product "is significantly more variable, contains a range of potential contaminants, and is logistically more challenging to collect and sort compared to post-industrial output."[50] While Section 6 of SHB 1420 specifies that plans for covered products must be designed to accept and manage all post-consumer covered products, key informants stated there could be greater clarity about whether post-industrial and pre-consumer material or products are covered or not covered in the definitions of "apparel" and "textile article" (personal communications, August-September 2025), especially since these products may also enter the reuse and recycling markets.

Definition of producer

SHB 1420 includes a tiered or waterfalled definition of "producer" (personal communications, August-September 2025). Generally, key informants stated that the definition of "producer" was challenging, broad, and extensive (personal communication, August-October 2025). Key informants stated that the tiered definition of "producer" in SHB 1420 makes it challenging to determine how many or which businesses may meet the definition of "producer" (personal communications, August-September 2025). Moreover, the definition of "producer" permits a person who has mutually signed an agreement with a producer to assume responsibility and join a PRO. It is not possible to predict in which circumstances a person may sign an agreement with a producer (personal communications, August-September 2025). Further, key informants noted the definition of "producer" in SHB 1420 does not match the definition of producer in other areas of state law, including other EPR programs (personal communications, September 2025). Taken together, it is not possible to rely on any list or dataset to determine how many businesses or which businesses may meet the definition of "producer" in SHB 1420 (personal communications, September 2025).

SHB 1420 would likely also apply to businesses outside the apparel and textile industries (personal communications, August-October 2025). For example, many retailers sell apparel products (e.g., shirts, hats, bags) or textile articles (e.g., towels) even if apparel and textile articles are not their primary business (personal communications, August-October 2025). Key informants stated that businesses like food establishments, grocery stores, convenience stores, pet stores, and hardware stores may also be impacted by SHB 1420 due to certain products sold (e.g., grocery tote bags, shop or kitchen towels, pet bedding, stuffed animals/toys, seasonal items) (personal communications, August-October 2025). Key informants questioned whether specific types of businesses would be considered "producers" under SHB 1420, including mall kiosks, cruise ships docked in Washington State ports, farmers' market vendors, etc. (personal communication, AWB, September 2025).

Due to the complex, interconnected, and often invisible supply chains and nuances in the apparel and textile industries, key informants stated it could be complicated to determine which businesses may meet the definition of "producer" (personal communications, September 2025). Some key informants expressed concern that retailers may be considered a "producer of last resort" unless there is clear understanding of the supply chain and a clear definition of "producer" (personal communication, WRA, November 2025). Some key informants stated determining the "producer" for large global brands may be especially challenging (personal communications, August-October 2025). Relationships between brands, manufacturers, distributors, and retailers are complex and unique (personal communications, September-October 2025). In some instances, brands may contract with multiple manufacturers (personal communication, August-October 2025). Often, the entity that manufactures a product or imports the product is not the entity whose name is on a product (i.e., the brand) (personal communication, AAFA, October 2025). For example, a brand may contract with 60 entities to produce licensed apparel (personal communication, AAFA, October 2025). The tiered definition of “producer” in SHB 1420 makes it unclear which entity (manufacturer, importer, brand, retailer, etc.) in this supply chain may be the “producer” for an EPR program for apparel and textile articles (personal communication, AAFA, October 2025).

Brands also have contracts with multiple retailers (personal communication, August-October 2025). Often, a brand may sign a contract to supply a certain amount of apparel products to a retailer, who will then decide in which retail stores they will sell a product (personal communication, August-October 2025). Retail strategies are proprietary, and brands typically do not know which stores offer their product or how much product may be available in any location (personal communication, AAFA, October 2025). Moreover, retailers may shift product intended for a different market into Washington State depending on sales, weather, trends, etc. (personal communications, August-October 2025). Therefore, a brand may not be aware if, or how much of, their product is being sold in Washington State (personal communication, AAFA, October 2025). With these complexities, brands may need to join a PRO or register with Ecology without having specific sales data (personal communications, August-October 2025).

Lastly, key informants stated it is unclear whether a business warehousing product in Washington State would meet the definition of “producer” (personal communication, AWB, September 2025). For example, some businesses may hold product in Washington State but sell to consumers outside the state (personal communication, AWB, September 2025). Key informants stated it is unclear whether SHB 1420 would apply to businesses that bring products into Washington State if those products are not intended for a Washington consumer or never reach a Washington consumer (personal communication, WRA, September 2025).

Key informants also provided conflicting explanations of which producers may be exempt from the definition of “producer” based on sales. The definition of “producer” in SHB 1420 would exempt sellers that sell only secondhand covered products and sellers with less than $1 million in annual aggregate global turnover as adjusted annually for inflation. Some key informants suggested the intent of these exemptions could be to protect small businesses (personal communications, August-October 2025). However, some key informants suggested these exemptions may act as a deterrent to business growth or expansion or may incentivize businesses to remain below a certain sales volume (personal communication, AWB, September 2025).

Some key informants also questioned how these exemptions may apply to retailers if apparel and textile articles are not their primary business (e.g., grocery stores, convenience stores, hardware stores) (personal communications, September-October 2025). For example, key informants questioned whether annual aggregate global turnover would consider a retailer’s overall profit or only profit made from the sale of apparel and textile articles (personal communications, September 2025). Key informants stated it may be challenging to evaluate potential producers who may be exempt based on global aggregate turnover (personal communication, AWB, September 2025). In other EPR programs, Ecology has considered all potential producers as covered by the law until they are determined exempt, and this process may be onerous if most businesses in Washington State have the potential to meet the definition of “producer” (personal communication, AWB, September 2025).

Key informants from CalRecycle stated that their rulemaking process may further specify which businesses are impacted by California's Responsible Textile Recovery Act (personal communication, CalRecycle, September 2025). Specifically, as part of the economic analysis for rulemaking, CalRecycle would complete an assessment to estimate the number and types of businesses that may be impacted (personal communication, CalRecycle, September 2025). Therefore, if SHB 1420 were to pass, the details of which businesses meet the definition of "producer" would likely be determined in rulemaking (personal communications, August-September 2025).

Convenience standards

SHB 1420 would require a plan submitted by a PRO to include quantifiable 5-year and annual performance standards and metrics unless, or until, Ecology publishes performance standards. A PRO would be required to provide an analysis of whether they met performance standards in their annual report. After March 1, 2033, Ecology may establish, review, and adjust performance standards based on information included in plans and annual reports, other information provided by a PRO, waste characterization studies, needs assessments, and economic and other information deemed relevant.

Key informants stated that allowing a PRO to establish starting metrics, in coordination with Ecology, is important for EPR program success (personal communications, September 2025). There are limited data about the types and amount of apparel and textile articles generated, sold, reused, or recycled in Washington State (personal communications, August-September 2025). This type of information may be collected during the needs assessment and would help identify appropriate starting metrics and goals for an EPR program and ensure initial convenience standards align with industry practices (personal communications, August-September 2025).

Key informants from Ecology noted that some information from the needs assessment would be necessary to finalize rulemaking (personal communication, Ecology, August 2025). For example, Ecology would use the needs assessment to determine: the scope and scale of the EPR program for apparel and textile articles; any additional requirements that must be included in a PRO's plan or annual report that are not in law but are identified as critical to program operation or validation; any additional requirements for education and outreach or infrastructure; any PRO performance requirements; and any additional clarity or requirements that should be addressed in rule (personal communication, Ecology, September 2025).

Key informants stated that, generally, rule adoption should occur after the needs assessment is complete (personal communication, Ecology, September 2025). However, based on the timeline outlined in SHB 1420, Ecology would need to complete rulemaking prior to the date a PRO would need to complete the needs assessment (personal communication, Ecology, August 2025). Therefore, Ecology may not have all necessary information to complete rulemaking (personal communication, Ecology, August 2025). For example, key informants from Ecology stated that they do not know and do not have access to the full product line or distribution chain of an industry player (personal communication, Ecology, September 2025). Therefore, Ecology would need information from the needs assessment to determine the full scale of covered products (personal communication, Ecology, September 2025).

Since key informants from Ecology stated that the definitions of apparel and textile article, definition of producer, convenience standards, and other components would be clarified in rulemaking and since these components inform requirements of the plan, we have made the informed assumption that Ecology conducting rulemaking and adopting rules to implement, administer, and enforce an EPR program for covered apparel and textile articles would result in a PRO submitting and fully implementing a plan that meets specified requirements.

Would a PRO submitting and fully implementing a plan that meets specified requirements increase public education and awareness about collection of apparel and textile articles for reuse and recycling?

We have made the informed assumption that a PRO submitting and fully implementing a plan that meets specified requirements would increase public education and awareness about collection of apparel and textile articles for reuse and recycling. This assumption is based on provisions of the bill; evidence from pilot programs in Seattle and King County, Washington, and San Jose, California; and information from key informants, including key informants from California, city and county solid waste management and recycling programs, state and local governmental public health, federal and state associations representing potential producers, and organizations with expertise in circular economies and apparel and textile articles.

Section 11 of SHB 1420 would require a PRO to develop and implement a comprehensive statewide education and outreach program. SHB 1420 would require a PRO to promote participation in the program and provide information to consumers, retailers, distributors, wholesalers, local jurisdictions, federally-recognized Tribes, and additional parties. At minimum, the program must include: an effective education and communication strategy; a joint internet website (i.e., coordinated by all PROs registered with Ecology); prominently displayed and visible signage; signage and materials at no cost to collection sites; a strategy to communicate with consumers who speak a language other than English; promotional materials and activities that explain the purpose of a PRO; a strategy to encourage separation of covered and non-covered products before submitting to collection sites or a mail-back program; materials to inform third-party sellers on online platforms of their responsibility to join a PRO; and information on secondhand markets and the benefits of reuse and repair. Additionally, the education and outreach program would be required to provide information on where consumers can buy repaired and reused covered apparel and textile articles and how to avoid incorrect disposal of covered products.

Evidence indicates that “the public generally lacks awareness of where diverted textiles ultimately end up […] and an education campaign that communicates a simplified message of how the textile recovery industry works could help improve trust.”[51] Additionally, evidence from textile recycling pilots indicates that education and outreach campaigns can increase public awareness of apparel and textile collection for reuse and recycling. In 2012-2013, Seattle and King County, Washington, partnered to create a public education campaign called ThreadCycle (personal communications, September 2025). The campaign encouraged people to donate secondhand clothing to local thrift stores and charities, including items that were ripped or stained, rather than throw them away in the trash (personal communications, August-September 2025). Donated apparel that cannot be reused or resold on the secondhand market may be graded and made into insulation, shoddy cloth, wiping rags, etc. (personal communication, Seattle

Public Utilities [SPU], September 2025). Seattle and King County did not conduct a formal evaluation of whether the campaign impacted collection rates or volume (personal communication, SPU, September 2025). However, anecdotally, people provided positive feedback on the ThreadCycle campaign (personal communication, SPU, September 2025), suggesting some awareness of the program.

Similarly, San Jose, California, previously implemented a curbside apparel recycling program (personal communication, CPSC, September 2025). More than a decade after the city's curbside pilot program was canceled, some San Jose residents continue to place apparel and textile articles in curbside recycling (personal communication, CPSC, September 2025), suggesting awareness of the historical program. Key informants shared that people often learn recycling practices once and, once a recycling program is established and advertised, it is hard to stop people from placing apparel and textile articles in recycling bins (personal communications, September-October 2025).

Some key informants noted additional components a PRO should include in education and awareness efforts. For example, key informants suggested outreach and education efforts by a PRO should include messaging around overconsumption, buying less, and purchasing more durable goods (personal communications, September-October 2025).[29] Such messaging may help reduce the volume of apparel and textile articles requiring collection, sorting, reuse, repair, or recycling processes. Some key informants also suggested a PRO may need to engage in education efforts with producers in Washington State and outside of Washington State (personal communication, AWB, September 2025). For example, key informants mentioned that many small businesses on the border of Washington State (e.g., in Portland, Oregon) sell into the state and may not be aware of EPR program requirements if SHB 1420 were to pass (personal communication, AWB, September 2025).

Some key informants stated that outreach and education efforts would be more effective if conducted by a state agency or city or county solid waste management or recycling program rather than a PRO (personal communication, American Circular Textiles, August 2025). People look to local government to understand waste management and recycling practices in their area, and city or county solid waste management programs are a trusted source of information and may provide more consistent information than multiple PROs or brands (personal communication, American Circular Textiles, August 2025). Key informants representing local solid waste management and recycling programs and governmental public health programs stated they would also conduct outreach and education campaigns related to apparel and textile reuse and recycling if SHB 1420 were to pass (personal communications, August-October 2025).

Overall, since SHB 1420 would require a PRO to develop and implement a statewide education and outreach plan and specifies components of the plan and since local government entities may also conduct outreach efforts, we have made the informed assumption that a PRO implementing a statewide education and outreach plan that meets specified requirements would likely increase public awareness about collection of apparel and textile articles for reuse and recycling.

Would increased public education and awareness about collection of apparel and textile articles for reuse and recycling increase collection of apparel and textile articles for reuse and recycling?

There is a fair amount of evidence that increased public education and awareness about collection of apparel and textile articles for reuse and recycling would likely increase collection of apparel and textile articles for reuse and recycling. This rating is based on provisions of the bill; current apparel and textile donation practices; consumer recycling survey data; evidence from textile recycling pilots and programs in other jurisdictions; and information from key informants, including key informants from California, city and county solid waste management and recycling programs, and organizations with expertise in repair, reuse, or resale of apparel and textile articles.

Section 9 of SHB 1420 would require a PRO to approve collection sites and convenience standards for covered apparel and textile articles. Specifically, a PRO would be responsible for providing a free and convenient drop-off or collection system for covered products. The bill would establish minimum numbers of permanent collection sites based on county population. Collection infrastructure may also include temporary collection sites and mail-back options. SHB 1420 would require collected apparel and textile articles to be managed in a way that prioritizes reuse and repair.

Key informants stated that, for an EPR program to be successful, people would need to direct secondhand apparel and textile articles to collection sites so that items could be diverted for reuse, repair, and recycling (personal communications, September-October 2025). Key informants stated and evidence suggests this process must be convenient[50,51,61] (i.e., easy for people to move product into the system) and people must trust that apparel and textile articles they donate will go to reuse, repair, or recycling[50,51] (personal communication, Accelerating Circularity, October 2025). This may require a culture shift, where people think about repair options, what is able to be donated for reuse or resale, and recyclability (personal communications, October 2025). In a recent survey of city, county, and Tribal recycling coordinators in Washington State, 38.5% of respondents reported lack of public awareness or participation as the largest barrier to participating in textile recovery efforts (unpublished data, Ecology, 2025). One respondent stated increasing textile recovery efforts requires "a shift in consumer buying habits and willingness to pay for repair versus new" (unpublished data, Ecology, 2025). Evidence also suggests that apparel and textile industries have:

> largely shifted away from durability and repair in favor of fast fashion and disposal. As a result, consumers are often unsure how to participate in a circular economy for textiles [and] may not understand how to identify circular products or the benefits of purchasing them.[5]

Currently, non-profit and charitable organizations across Washington State accept donations of secondhand apparel and textile articles (personal communications, August-October 2025). Goodwill is the most widely available and well-known organization for people to donate secondhand apparel and textile articles (personal communications, August-October 2025). Goodwill Industries International (GII) is a network of more than 150 community-based, autonomous organizations across the U.S., Canada, and several other countries.[62] Washington State has 5 regionally-organized Goodwills (personal communications, Goodwill of the Olympics & Rainier Region, October 2025). People can donate items directly at Goodwill stores, at attended donation centers, or in donation bins located within the community (personal communication, Goodwill of the Olympics & Rainier Region, October 2025). In Washington State, 88% of the population lives within a 10-mile radius of a Goodwill drop-off location (personal communication, Goodwill of the Olympics & Rainier Region, October 2025). In 2024, 1 of the 5 Goodwills in Washington State received 60 million pounds of donations (including apparel and textile articles) (personal communication, Goodwill of the Olympics & Rainier Region, October 2025). In addition to the 5 Goodwills, additional non-profit and charitable organizations also collect apparel and textile donations (personal communications, August-October 2025). Secondhand businesses (e.g., consignment, vintage, artisans) also collect or purchase secondhand apparel and textile articles for reuse or resale (personal communications, October 2025).

Survey data show that people living in the U.S. generally want to recycle and are supportive of recycling programs.[52,53,63,64] A 2024 survey of U.S. adults found nearly half (44%) of respondents reported looking for ways to expand their recycling practices.[53] Respondents to various surveys indicated that reducing, reusing, and recycling are ways to take personal responsibility to protect the environment.[52] People generally express that recycling is a way to feel like they are solving a problem instead of creating one (personal communications, August-October 2025). Key informants agreed that Washingtonians generally support recycling efforts and express interest in how to direct materials, including textiles, to reuse or recycling efforts (personal communications, August-October 2025). Moreover, people are generally supportive of EPR programs because they provide viable options for responsible disposal of products (personal communication, Pierce County Solid Waste, September 2025).

Despite the desire to recycle, gaps in the U.S. recycling system can create barriers to recycling.[53] A 2018 survey found 66% of respondents agreed that "if a product is not easy/convenient for me to recycle, I probably would not recycle it."[54] Barriers to recycling include confusion about what is and is not recyclable, limited access to recycling in certain areas, and lack of clarity about what happens to materials once placed in recycling bins.[53] A 2024 survey found nearly half of people living in the U.S. reported confusion about what can and cannot be recycled.[53] Related to textiles, research in King County, Washington, found people were unclear about which types of fibers are recyclable and "[m]ost people do not think about the fiber types of their textiles or whether the material has multiple fiber types."[65]

Survey data have shown people living in rural areas of the U.S. (55%) are least likely to recycle compared to people living in suburban (70%) and urban (68%) areas.[53] About 29% of respondents living in rural areas reported recycling services are not offered where they live, and 31% described local recycling programs as "somewhat or extremely lacking" compared to 18% of people living in the U.S. overall.[53] Finally, among respondents who reported not recycling, 18% said they do not recycle because they do not believe the materials get recycled.[53] This percentage was higher among certain age groups, with 50% of respondents aged 18-24 years expressing doubt that materials are recycled.[53]

Specific to textiles, respondents to a survey of city, county, and Tribal recycling coordinators in Washington State also reported low confidence from coordinators and consumers about whether apparel and textile articles are actually recycled (unpublished data, Ecology, 2025). Moreover, high-profile investigations and media coverage showing donations being shipped overseas and landfilled or burned has created additional doubt about whether items are recycled.[50] Because "many consumers do not know what they can donate or that donations support recycling," apparel which could be used as post-consumer textile-to-textile feedstock (i.e., material used to supply the textile recycling process) are thrown away.[8,50] Consumers generally throw away clothes due to low awareness, lack of incentives, and mistrust in the donation system.[50] This leads to approximately 13.1 million metric tons of mostly post-consumer used textiles being sent to landfills rather than diverted to thrift stores and donation centers.[50] A 2023 survey of U.S. adults age 18 years and older found that among respondents with unwanted textiles in the past year, 40% reported throwing at least some of them away.[51] The most commonly reported reason these respondents reported for not diverting textiles was "the condition or quality is too poor" (37.5%) followed by convenience (37%), lack of confidence knowing what is accepted for donation, reuse, or recycling (10%), and skepticism as to whether textiles are actually reused or recycled (5%).[51] Some key informants stated that SHB 1420 would provide greater transparency about end-markets for apparel and textile articles (personal communication, King County Solid Waste Division [KC SWD], September 2025).

Survey findings also suggest that people living in the U.S. are more inclined to recycle generally when they have greater awareness of and convenient access to recycling options.[53,54] For example, 64% of respondents to a 2024 survey reported that "knowing more about what to recycle, as well as how, where, and what not to recycle, would increase their recycling involvement."[53] Survey respondents have also reported feeling guilty when their trash includes items that could be recycled.[52] Evidence indicates that both subjective and objective recycling knowledge measures are significantly positively associated with recycling behavior.[55] Data suggest subjective knowledge may be more important to help consumers take action to recycle, which implies "improving consumer confidence in [recycling] knowledge may be more important than raising real knowledge level in encouraging recycling behavior."[55] There are currently pilots running with curbside collection to evaluate potential shifts in consumer behavior as well as economic feasibility.[50]

There are limited formal evaluations about how education and outreach campaigns may impact textile collection volume. Some key informants stated that collection volume remains relatively steady over time; some key informants stated that collection volume may vary by season, economic outlook, etc. (personal communications, October 2025). Previously implemented pilot projects in Seattle and King County, Washington, and San Jose, California, suggest that increased public education and awareness about collection of apparel and textile articles for reuse and recycling may increase collection of these items for reuse and recycling. Seattle and King County did not conduct a formal evaluation of whether the ThreadCycle campaign impacted collection rates or volume; anecdotally, people provided positive feedback on the campaign (personal communication, SPU, September 2025). However, following greater public awareness of the effects of apparel and textile waste on the Global South, the ThreadCycle campaign was deemphasized due to a lack of transparency about what happens to textile materials after they are exported (personal communication, SPU, September 2025). In addition, there is no economically or commercially stable recycling technology or infrastructure in the U.S. to manage apparel and textile articles (personal communications, August-October 2025). Key informants expressed concerns that the ThreadCycle campaign could contribute to a higher volume of items exported, where it could burden more than benefit communities internationally (personal communication, SPU, September 2025).

San Jose, California, implemented a curbside apparel recycling program, which directed people to place apparel items in a closed bag in their recycling bin (personal communication, CPSC, September 2025). However, the program was canceled because apparel items became contaminated and molded (personal communication, CPSC, September 2025). St. Paul, Minnesota, ran a similar curbside textile recycling program for nearly 2 decades.[51] However, the program was discontinued due in part to contamination issues as well as disruptions in textile end markets.[51]

A more recent pilot, in New York, New York, placed collection bins in large apartment buildings to encourage consumer donations.[50] The convenient placement led to an increase in clothing donations, with 4.4 metric tons of textile collected daily in 2021.[50]

Therefore, based on provisions of the bill; current apparel and textile donation practices; consumer recycling survey data; and evidence from textile recycling pilot projects and programs in other jurisdictions; there is a fair amount of evidence that increased public education and awareness about collection of apparel and textile articles for reuse and recycling would likely increase collection of these items.

Would increased collection of apparel and textile articles for reuse and recycling impact reuse and recycling of apparel and textile articles?

There is unclear evidence how increased collection of apparel and textile articles for reuse and recycling may impact reuse and recycling of apparel and textile articles. There is limited research on the impacts of EPR programs for apparel and textile articles, and there is currently little to no large-scale reuse or recycling infrastructure to process apparel and textile articles.

Globally, EPR programs for apparel and textile articles are limited and emerging,[19] and key informants stated that programs in other countries are not generalizable to the U.S. sociopolitical context and waste management and recycling infrastructure (personal communications, August-October 2025). Similarly, California's Responsible Textile Recovery Act is the first statewide EPR program for apparel and textile articles in the U.S., and there is no research evaluating how an EPR program for apparel and textile articles affects reuse and recycling in the U.S. (personal communications, August-October 2025).

All key informants stated, and available evidence shows, there is little to no economically or commercially stable recycling technology or infrastructure in the U.S. to manage apparel and textile articles at a scale needed to support an EPR program, including infrastructure to collect, sort, grade, or recycle apparel and textile articles (personal communications, August-October 2025).[29] SHB 1420 would require a PRO to conduct a statewide needs assessment that identifies actions and investments necessary to provide sufficient access to collection, recycling, composting, processing, and transportation to responsible and economically viable end markets. However, SHB 1420 does not detail what infrastructure must be developed or how infrastructure must be financed. Rather, a PRO would be responsible for determining infrastructure needs and deciding which infrastructure to develop, where to develop infrastructure, and how to finance infrastructure development to meet reuse and recycling needs (personal communications, August-October 2025).[19]

Key informants noted it is not possible to predict whether or how a PRO may decide to finance or develop infrastructure (personal communications, August-October 2025). Some key informants noted that state level textile recycling may not be economically viable and a PRO may not be able to raise sufficient revenue to build necessary reuse and recycling infrastructure (personal communication, American Circular Textiles, August 2025). Developing infrastructure would also require funding for research, siting and permitting, community engagement, building, etc. (personal communication, City of Tacoma Environmental Services, September 2025). Moreover, key informants questioned whether producers would pay for the infrastructure needed to support recycling (personal communication, American Circular Textiles, August 2025). For example, in certain instances, EPR program fees for producers have been insufficient to cover the cost of infrastructure development (personal communications, September-October 2025). National research has stated there are no financial incentives to reduce textile waste, and "it is still unclear how [textile recycling] infrastructure development in the U.S. will be financed or conducted."[66]

Key informants also stated that a PRO would likely need to manage infrastructure contracts with businesses that can operate at scale and manage large volumes of textiles for collection, sorting, reuse, and recycling (personal communications, AAFA, October 2025). For an EPR program to be effective, a PRO would likely need to contract with businesses that can manage high volumes, which may disproportionately favor larger, more established businesses (personal communication, AAFA, October 2025).

All key informants stated that SHB 1420 may lead to infrastructure to collect, sort, grade, or recycle apparel and textile articles (personal communications, August-October 2025). About 22% of surveyed city, county, and Tribal recycling coordinators in Washington State support policy or regulatory guidance for textile recovery projects, including an EPR program, even as 46.2% of respondents reported limited infrastructure or collection sites as the largest barrier to participating in textile recovery efforts (unpublished data, Ecology, 2025). One respondent stated, "we could recover so much more [apparel and textile articles] if we had places to send it, particularly clothing that is no longer wearable" (unpublished data, Ecology, 2025).

Similarly, a review study on textile recycling practices stated an EPR program for textiles "is considered essential in promoting a circular economy system."[67] Specifically, "[w]ithout EPR policy, the collection, reuse, and recycling of textiles is unlikely to be meaningfully scaled and tens of millions of tonnes of textiles will continue to be landfilled, incinerated, or will leak into the environment every year."[13] EPR policies may help to develop new sectors, employment, and opportunities for collection, sorting, reuse, repair, and recycling.[13] However, "significant investments are required to create separate collection, reuse, and recycling infrastructure at scale. The economics and output quality of existing sorting processes and textile-to-textile recycling technologies need to be drastically improved" and must occur alongside industry-focused initiatives like EPR programs.[13] Evidence indicates that, "[w]ithout proper infrastructure, EPR systems, if poorly executed, could create more problems than solutions - leading to increased clothing exports, typically to lower income countries with even less waste management laws and infrastructure."[8]

Overall, key informants stated it is unclear where apparel and textile articles collected as part of an EPR program may go since there is currently no large-scale reuse or recycling infrastructure in the U.S. and technology for textile recycling is still emerging[67] (personal communications, August-October 2025). Many key informants stated: 1) they did not know what investments or technologies would be needed or how to scale up infrastructure to support an EPR program for apparel and textile articles and 2) any infrastructure development would likely occur over time, rather than in the short-term (personal communications, September-October 2025).

There are several factors that make it challenging to recycle apparel and textile articles and to develop recycling infrastructure for apparel and textile articles, including infrastructure to collect, sort, grade, reuse, repair, preprocess, and recycle apparel and textile articles. Key informants stated the same infrastructure for collection, sorting, and grading is required to determine if an item is suitable for reuse or recycling (personal communication, AAFA, October 2025). Apparel and textile articles not reused or recycled may enter the export market or be landfilled (personal communications, September-October 2025).

Collect

Section 9 of SHB 1420 would require a PRO to approve collection sites and convenience standards for covered apparel and textile articles. Specifically, a PRO would be responsible for providing a free and convenient drop-off or collection system for covered products. The bill would establish minimum numbers of permanent collection sites based on county population. Collection infrastructure may also include temporary collection sites and mail-back options. SHB 1420 would require collected apparel and textile articles to be managed in a way that prioritizes reuse and repair.

SHB 1420 would likely increase the number of locations where people could drop-off apparel and textile articles for reuse, repair, or recycling (personal communications, KC SWD, September 2025). To date, EPR program conversations have focused on collection sites, and SHB 1420 would likely shift funding and investment into collection infrastructure (personal communications, October 2025).

While the definition of "producer" in SHB 1420 would exempt sellers who sell only secondhand covered products, key informants stated that non-profit and charitable organizations that currently receive and process donations of apparel and textile articles would likely experience increased volume from collection and increased need to sort and grade product (personal communications, September-October 2025). In the U.S., "[n]o consistent, convenient, and widespread infrastructure exists to collect textiles suitable for recycling or to retain value on the secondhand market."[11] Moreover, current collection systems "are underdeveloped and do not capture all textiles placed on the market."[13] Instead, collection of secondhand products is currently focused on directing items to reuse and resale,[13] rather than on collection of all products (e.g., stained, ripped, worn items), especially as infrastructure for recycling is limited (personal communication, Accelerating Circularity, October 2025).[12] Researchers have stated that infrastructure development and investment in the collection system is needed to manage "all discarded textiles, not just the fraction with high market value" through resale.[13] Some key informants stated that existing infrastructure to collect and process secondhand apparel and textile articles may be unable to handle additional volume (personal communications, September 2025). Some key informants stated that the current infrastructure has capacity to collect and process additional volume (personal communications, September-October 2025). All key informants stated that Goodwill has the most developed infrastructure to collect and process apparel and textile articles (personal communications, September-October 2025).

Some key informants stated it may be difficult for a PRO to achieve the required number of collection sites specified in SHB 1420 (personal communication, American Circular Textiles, October 2025). Not all communities, cities and counties, or businesses allow or support collection bin placement (personal communications, September-October 2025). For example, some localities have restrictions or ordinances about where collection bins can be sited (personal communications, September-October 2025). Restrictions and ordinances may also apply to resellers and recyclers (personal communication, South King Tool Library, November 2025). Key informants from federal and state associations representing potential producers also shared that retail establishments are designed to move product out and may not have space or capacity to takeback, store, or collect product for resale or recycling (personal communications, September-October 2025). There is not currently capacity or existing infrastructure for a return system if retail establishments were to serve as collection sites for an EPR program for apparel and textile articles (personal communication, Northwest Grocery Retail Association [NGRA], October 2025).

All key informants stated operating collection bins for apparel and textile articles is challenging and discussed multiple difficulties (personal communications, August-October 2025). Textiles are prone to contamination but must be clean, dry, and free from chemicals to be recycled.[50] Collection bins may be used for disposal of other waste products, which can result in apparel and textile articles becoming contaminated (i.e., damaged, stained, moldy, or mildewed) (personal communications, August-October 2025). Some key informants stated that, for these reasons, some businesses are transitioning from collection bins to mail-back programs, which encourage consumers to mail products in their own or pre-paid packages back to a brand for repair or resale (personal communication, AAFA, October 2025).

Sort and grade

Textile sorting and grading involves evaluating and classifying secondhand textiles based on factors like quality, condition, fiber type, color, type of textile (e.g., shirt, pants, shoes), and potential for reuse and recycling (personal communications, October 2025).[11,50] However, sorting and grading is not currently standardized and there is not "a common language to understand the categories and qualities [in which] discarded textiles can be sorted."[13] Researchers have identified a need to develop standards for textile sorting and grading.[5,13]

Existing waste management and recycling infrastructure used to separate and sort recyclables at solid waste and recycling transfer centers cannot handle cloth and textiles (personal communication, Washington State Association of Counties [WSAC], September 2025). Cloth and textiles get tangled in machines used to sort recyclables and prepare items for recycling, which can stop processing and break machinery (personal communication, WSAC, September

2025). Key informants stated that new technology, rather than upgrades to existing machinery, would be needed to separate and sort apparel and textile articles for recycling (personal communication, WSAC, September 2025). Due to these specialized technology needs, cloth and textiles likely could not be comingled with other recyclables for curbside collection and sorting (personal communications, September 2025).

For example, during a recent pilot in San Jose, California, the city pulled 3 tons of textiles in 2 days from the city's curbside recycling collection (personal communication, CPSC, September 2025). Because apparel items were comingled with recyclables, the items were sent to the landfill instead of being sent for recycling (personal communication, CPSC, September 2025), suggesting that collection methods can impact the usability of collected textile materials for reuse and recycling purposes.

Another pilot program in the City of Kirland and Snohomish County, Washington, has been exploring the potential for curbside collection of used apparel at 8 multifamily properties.[65] The pilot has included outreach with property managers and tenants and has reported "limited contamination in the [collection] carts since the program was rolled out and properties are generating, on average, 100 pounds of textile per week."[65] However, collected textiles are delivered to Goodwill for sorting and grading,[65] rather than going through the typical process for material collected curbside.

There are two main limitations to textile sorting: manual sorting and identifying fiber types.[5,12,50] First, "most textile sorting and grading is performed by hand,"[5] meaning that staff at solid waste or recycling collection centers or sorting businesses must handle each garment and textile article individually to determine the item's potential for reuse or recycling (personal communications, September-October 2025).[12] This process is labor, time, resource, and space intensive (personal communications, September-October 2025).[12] For example, local waste transfer stations are required to handle and prioritize certain waste streams (personal communication, WSAC, September 2025). Key informants from city and county solid waste management and recycling programs stated that jurisdictions currently struggle to remove recyclables from trash (e.g., paper, plastic) and would likely not prioritize apparel and textile articles for separation until they could address current mandates and priorities (personal communications, September 2025). Bringing in a new waste stream is challenging, especially a waste stream that may require specialized technology and handling, and many transfer stations are operating at capacity in Washington State (personal communication, WSAC, September 2025). Researchers noted, "the pathway to scale up sorting from manual to automated processes is challenging because of the large volumes and highly variable nature of the [textile] waste stream."[5]

Second, apparel and textile articles are typically composed of mixed or blended materials.[5] For example, a garment may be 100% cotton or a blend of fibers (cotton, polyester, elastane, etc.) (personal communications, August-October2025). Items composed of one material (i.e., 100% cotton, 100% wool, 100% silk) may be suitable for some forms of textile recycling, while items composed of blended materials may be suitable for other forms of recycling (personal communication, AAFA, October 2025). However, staff responsible for sorting and grading may not be able to tell a garment or textile article's composition from looking at or handling the item (personal communications, August-October 2025). For example, staff may be able to identify an item as a rain jacket but would likely not be able to identify which material or treatment was used to ensure the item is waterproof, which could impact whether it is recyclable (personal communication, AAFA, October 2025). Some sorting businesses require staff to first check if a garment or textile article has a tag or label specifying its material composition; however, key informants noted that it can become difficult to read a tag or label over time and consumers often remove tags and labels (personal communications, October 2025).[12] Some startup companies are developing technology to help determine if an item is a blend of materials (personal communications, October 2025).[12] However, there is currently limited technology to assist with sorting and grading apparel and textile articles.

There is also no infrastructure to support large scale sorting and grading of apparel and textile articles, technology is limited, and sorting methods and processes are not currently standardized (personal communications, October 2025).[5,11] Moreover, "only a few sorters remain operational within [the U.S.], and the vast majority of collected textiles is thought to be exported for sorting in Canada and Latin America."[13]

Key informants stated that the volume of apparel and textile articles collected as part of an EPR program would require a large amount of sorting infrastructure, which would need to be developed and made more efficient (personal communications, October 2025). For example, pilot assessments have estimated the City of Los Angeles generates over 70,000 tons of commercial textile waste and may require 3 sorting plants to handle this collection volume (personal communication, CPSC, September 2025).

SHB 1420 would require a PRO to prioritize facilities located closer to the point of collection to minimize transportation-related emissions and to increase accountability for covered products. While some key informants suggested that sorting infrastructure would be developed in Washington State if SHB 1420 were to pass, some key informants stated that sorting infrastructure would likely need be developed regionally or in hubs to handle volume (personal communications, September-October 2025). High-tech sorting facilities for other products using infrared spectrometer technology reportedly require at least 30,000 tons of material feedstock annually to remain economically viable.[68] Some key informants also suggested sorting may be further developed in states with startup infrastructure (e.g., North Carolina, Ohio, Pennsylvania) (personal communications, September-October 2025).

Key informants also noted that sorting and grading at scale would not be a curation process (personal communication, AAFA, October 2025). For example, some smaller scale sorters can separate items to meet the needs of specific customers, including by material type (e.g., wool, denim, cotton), by product category (e.g., plain shirts, shoes, hats), by requirements of specific retailers (e.g., vintage clothing, seasonal items), or by brand (personal communications, October 2025). Key informants noted that this level of curated sorting is time, labor, and resource intensive and requires staff training and capacity (personal communications, October 2025).

Sorting and grading to support an EPR program would need to occur at a larger scale and likely would not be able to support capacity, time, and training to identify apparel and textile articles to return to a specific brand, to go for a specific reuse, or to meet the specifications of a retailer (personal communication, AAFA, October 2025). Rather, sorting and grading to support an EPR program would likely consider and prioritize condition and material to determine an appropriate end market (personal communication, AAFA, October 2025). Organizations that currently bale apparel and textile articles as commodity for sale on the salvage market generally sort product into 20-30 categories (wool, cashmere, denim, sneakers, baseball hats, etc.) (personal communications, October 2025). Categories are dependent on whether there is a viable end market for the product and what types of product vendors will purchase (personal communication, Goodwill of the Olympics & Rainier Region, October 2025).

Reuse and repair
SHB 1420 would define "reuse" to mean the resale of a collected covered product to a consumer for its original intended use with or without repair. The terms "reuse" and "recycle" are often conflated as "consumers are often mistaken in thinking that recycling is the best first option for fashion life extension, when in actuality reuse is often the best first option" as it extends the life of a garment and defers its end-of-life.[9,67] Keeping a clothing item in circulation (i.e., increasing the use of a clothing item or the number times an item is worn during its lifespan) and purchasing a used clothing item can reduce the carbon footprint of the apparel sector.[9] Estimates suggest purchasing a used clothing item can reduce its carbon footprint by over 70%, including by offsetting the need for manufacturing a new item.[9] Currently, apparel and textile articles are typically not designed to last or be reused or repaired.[13]

After items go through the collection and sorting and grading processes and are deemed suitable for reuse, there is some existing infrastructure and a business model for reuse, repair, and resale (personal communication, American Circular Textiles, August 2025). At the local level, dry cleaners and nonprofit and community organizations focus on mending, repair, and reuse (personal communications, September-October 2025). Much of this infrastructure is at a micro-community scale that occurs at a business-to-business level within communities.[10] Local groups may also provide skills-based workshops, upcycling workshops, mending events, clothing swaps, etc. (personal communications, September-October 2025). A 2023 survey of U.S. adults found that only 45% of respondents expressed some level of agreement that they had convenient access to repair services.[51]

Recycling coordinators in Washington State explained that "upcycling businesses and organizations struggle with developing a sustainable business model. They also have challenges in finding a consistent supply of textiles and establishing end markets" (unpublished data, Ecology, 2025). Key informants also spoke about the need to foster a culture of mending, repair, and reuse to drive demand for and acceptability of these services (personal communications, October 2025). Scaling local reuse and repair opportunities may be challenging due to space constraints (e.g., for storage, warehousing, production), labor, and cost (personal communication, Remakery, October 2025).

Some brands operate takeback programs and resale sites. Some brands may offer repair services, either directly to the consumer or to prepare items for resale (personal communication, AAFA, October 2025). Some brands operate takeback programs because they invested in the research, development, and materials for products and know where the item was produced, when it was produced, and its resale value, and reselling an item can increase profitability for a brand (personal communication, AAFA, October 2025). Preliminary research has suggested brands with repair services have experienced significant consumer participation,[1] suggesting brand takebacks may be an effective model for reuse and repair.

However, takeback options require brands to have efficient reverse logistics programs and capacity to collect and sort product sent back from consumers (personal communications, September-October 2025). Brands with higher consumer price points may be better able to handle repair and reuse in-house.[19] However, this may not be economical for brands with lower price points or brands with less durable products.[19] About a third of all returns in the U.S. are landfilled because it is more economical for brands to landfill returned product than to resell items.[10] Some brands have partnerships with online resale platforms that can authenticate and price products for resale (personal communications, AAFA, October 2025). However, for any takeback program and resale site to work effectively, consumers must be aware of takeback and resale options and there must be consumer demand for secondhand products.[19]

Developing repair infrastructure at a large-scale would require investment in the growth and development of a skilled workforce and businesses.[19] The "repair and recovery sector is becoming less prevalent."[5] Key informants shared that there is a skills gap and less generational training in repair and mending (personal communications, October 2025). In addition, it is often more expensive to pay labor costs to have something repaired or mended than to buy something new, especially with the availability of fast fashion (personal communications, October 2025).

Preprocess

Preprocessing ensures that textile feedstock for recycling is uniform, clean, and compatible with the next stage of recycling to reduce inefficiencies and quality issues.[50] Generally, "[p]re-processing involves preparing textiles for recycling by removing notions and trims (e.g., zippers, buttons, seams, ribbings, badges, labels) and reducing the size of the material (e.g., shredding or cutting the textiles into smaller pieces)."[11]

Preprocessing has been identified as a bottleneck in the post-consumer textile-to-textile recycling chain.[50] Preprocessing work is not performed consistently, as sorters and recyclers may both be involved in the work.[50] Moreover, current preprocessing approaches "lead to significant material yield losses, impacting the total available feedstock for recycling."[50]

Key informants shared that many garments and textile items include components that need to be removed or separated for recycling (personal communications, August-October 2025). Textile products often contain elements like fasteners (e.g., zippers, buttons) and chemical coatings, finishes, dyes, and additives.[5] For example, 'disruptors' like zippers, buttons, snaps, handles, and other hardware may need to be removed so that each component may be recycled separately (personal communications, August-October 2025). Linings and trims made of different materials than the rest of the garment may also need to be removed (personal communications, August-October 2025). Even garments made of 100% cotton may use polyester thread (which is more durable) and cotton and polyester would need to be handled separately in recycling.[12] Key informants noted that the complexity of mixed materials used in garment construction adds time, labor, and cost to sorting and preprocessing apparel and textile articles for commodity and recycling markets (personal communication, Goodwill of the Olympics & Rainier Region, October 2025).

Another challenge to scaling textile-to-textile recycling stems from the strict input specifications that vary across recyclers.[12,50] For example, preprocessing includes size reduction, where textiles are shredded or cut into smaller swatches.[50] However, different recycling technologies require different specifications.[12] For example, mechanical recyclers generally prefer fibers as long as possible, while chemical recyclers prefer smaller, uniform swatches.[50] Additional requirements include feedstock purity, fiber composition, physical dimensions, and contaminant removal which vary based on the equipment available at each recycling facility.[50] Chemical recyclers generally have the strictest requirements as "contamination with other fiber types, elastane, dyes, or coatings can reduce yield, increase pre-treatment costs, or render the batch unusable."[50] Without standardization across recycling input requirements, materials must be sorted and processed to the specifications of each recycler or recycling type, which significantly fragments the usable feedstock pool.[50]

Recycle

The term "recycling" is not used consistently in the apparel and textile industries.[1,5] The term "recycling" may be used to refer to repurposing or reselling clothing items; incineration or energy generation from combustion of material; exporting product; trading product as commodity; downcycling; upcycling; etc. (personal communications, August-October 2025).[1,8] Technology and processes for textile recycling are not standardized and are still emerging (personal communications, August-October 2025).[5] Research has identified a need to develop standards for textile recycling.[5]

Generally, "[t]extile-to-textile recycling—also known as fiber-to-fiber recycling—is the process of turning textile waste into new fibers that are then used to create new textiles."[11] Global estimates suggest "less than 1% of material used to produce clothing is recycled into new clothing."[8] Apparel and textile articles are challenging to recycle.[1,13,50] Researchers have identified challenges related to economics and funding; blended materials; need for high volume, reliable, and homogenous feedstock; removal of dyes, additives, and finishes; degradation of fiber during processing; high temperature, pressure, time, and cost requirements in processing; use of or production of hazardous chemicals during processing; lack of technology for some common fiber types (e.g., elastane); and unknown energy consumption and environmental impacts.[1]

There are 2 types of textile-to-textile recycling processes: Mechanical and chemical.[5,11] The intent of both processes is to transform apparel and textile articles back into raw material to produce new products.[5]

<u>Mechanical</u>

Mechanical recycling involves physical processes that deconstruct fibers through methods like shredding, carding, cutting, pulling, or melting apparel and textile articles into fibers that can be reused in new yarns or nonwoven materials.[11,29,50] Mechanical recycling produces fibers that are weaker and lower quality.[11] Currently, mechanical recycling is primarily used for downcycling apparel and textile articles into products like wipers, shoddy cloth, stuffing, or insulation.[11,50] Mechanical recycling cannot detect or remove chemicals that may be in apparel and textile articles (personal communication, AAFA, October 2025). Generally, mechanical recycling processes are best suited for mono-material textiles (e.g., 100% cotton, 100% wool, or 100% silk).[1,11]

A 2023 study analyzed nearly 33,000 pounds of post-consumer garments across 7 regions of the U.S.[51] The analysis found that approximately 9% of residential post-consumer textiles in the waste stream were suitable for mechanical fiber-to-fiber cotton recycling.[51] However, in the U.S., mechanical recycling is primarily used for post-industrial apparel and textile articles.[1,12] Post-industrial material is more homogenous and of better quality (i.e., has not been degraded due to wear) and is therefore better suited for mechanical recycling processes.[1,5,11,12] Key informants also stated that the post-industrial waste stream creates a more predictable flow of material, and recycling companies know the material composition of items (personal communication, American Circular Textiles, August 2025).[12] It is unknown whether post-industrial mechanical recycling processes could work at a large scale for post-consumer apparel and textile articles (personal communication, AAFA, October 2025), especially without further technological advancements.[12]

Chemical

Chemical recycling "breaks down natural, synthetic, or blended materials (e.g., cotton, polyester, nylon) into their molecular components using chemical processes."[50] The process "reduces textiles to their basic molecular building blocks using chemical solutions, and then rebuilds them to produce fibers of similar quality."[11] The chemical solution required to break down textiles differs based on textile material.[11] While use of enzymes has advanced recycling of synthetic fibers, such recycling requires applying processes specific to the unique polymer.[69]

A 2023 study of post-consumer garments found that up to 56% of residential post-consumer textiles in the waste stream were suitable for chemical recycling.[51] However, chemical recycling technology is still emerging in the U.S. and has not occurred at a large scale.[1,50] As of May 2025, "[a]lmost all U.S.-based chemical recyclers [were] still in the pilot or commercial demonstration phase."[50] Key informants stated that an EPR program for apparel and textile articles could increase feedstock for research in chemical recycling processes, which could drive innovation and improvements (personal communication, Accelerating Circularity, October 2025).

In addition, "chemical recycling methods are typically not effective for fiber blends; however, some chemical recycling technologies have been successful in the laboratory and small-scale settings."[11] Preliminary research and trials have suggested that chemical recycling processes may be viable to sort blended materials, separate dyes, and remove harmful chemicals (personal communication, Accelerating Circularity, October 2025). There has been limited research on how effectively, completely, or consistently chemical recycling processes remove harmful chemicals (e.g., PFAS) (personal communications, August-October 2025). There has also been limited research on how chemical recycling processes for textiles may affect the environment (e.g., contribute to microfiber and microplastic pollution) (personal communications, September-October 2025). Specifically, chemicals used in the chemical recycling process are typically harsh, expensive, difficult to obtain, and have limited use at end-of-life, which contributes to the challenge of chemical recycling.[12] Due to expanding chemical regulations in the U.S., chemical recyclers are increasingly moving out of the U.S.[12]

The majority of textile-to-textile recycling currently occurs outside the U.S. (e.g., China, India, Spain, Vietnam) (personal communication, AAFA, October 2025). Based on available data, as of May 2025, there were 10 major mechanical recyclers and 2 major chemical recyclers operating in the U.S. (none in Washington State[a]).[50] Additionally, 6 chemical recyclers have plans to open a site in the U.S.[50] However, the capacity for most recyclers in the U.S. is unknown.[50]

Challenges

To operate at scale, both mechanical and chemical recycling strategies require feedstock that is consistent, reliable, and homogeneous (i.e., 80-95% pure depending on the process).[1,11,70] Post-consumer apparel and textile articles "are largely heterogenous, comprising various material types and blends, different colors, garments of various ages and conditions, and fasteners like zippers and buttons."[70] In addition, post-consumer products are often made from mixed or blended fibers. Research shows the mixing of different fibers and the use of dyes make it challenging to recycle textiles.[69] Specifically, "[c]urrent recycling technologies cannot process mixed material inputs (e.g., garments made from two or more fibers) nor can they process chemicals and finishes applied to garments."[1] Key informants stated it is challenging to recycle textiles because of the lack of information available on what combination of fibers are in each textile item (personal communications, August-October 2025). Researchers have expressed "the need for identification and composition of fiber types and blends (e.g., percent of fiber composition)" to support recycling processes.[1]

The Federal Trade Commission's Textile Fiber Rule (16 CFR Part 303) "requires that certain textiles sold in the U.S. carry labels disclosing generic name and percentages by weight of the constituent fibers in the product, the manufacturer or marketer name, and the country where the product was processed or manufactured."[71] Examples of textiles exempt from labeling requirements include coated fabrics, textiles with portions of coated fabrics, shoe laces, and diaper liners, among others.[12] Additionally, fibers that make up less than 5% of the item's weight do not need to be included on the label.[12] Similarly, trims and decorations (e.g., sequins) are also exempt from label disclosure if they do not exceed 15% of the surface area.[12] It is also legal for a required label to state that the textile is "made of remnants of undetermined fiber content," meaning comprised of unknown materials.[12] One company found that "close to 50% of clothing labels contain inaccurate garment composition data."[50] In addition to these regulatory challenges, consumers often cut tags and labels from apparel and textile articles, making it difficult to identify composition.[12] Moreover, textile label requirements "were originally intended to provide information for consumers (i.e., consumer-facing) and not intended for end-of-use pathways such as sortation."[5]

Additionally, after items go through collection and sorting and grading processes and are deemed suitable for recycling, key informants stated it is unclear where apparel and textile articles may go since there is no large-scale textile recycling infrastructure in the U.S. (personal communications, August-October 2025). Accelerating Circularity reported in May 2025 that, "[t]he U.S. has limited recycling capacity, encompassing several types of recycling, each with

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[a] Key informants from Accelerating Circularity shared that these lists are not comprehensive because the capacity of recyclers is often unknown (personal communication, Accelerating Circularity, October 2025). For example, key informants in Washington State spoke about a startup chemical recycling business located in Seattle, Washington (personal communications, September-October 2025).

varying levels of maturity, benefits, and challenges."[50] With limited infrastructure to build from, recycling infrastructure would need to be created and developed (personal communication, AAFA, October 2025). Key informants stated that recycling infrastructure would need to be in place before beginning large-scale collection of apparel and textile articles for recycling (personal communications, September 2025). Textile recycling in the U.S. would require new infrastructure and workforce skills.[9]

Key informants emphasized that, while an EPR program for apparel and textile articles may lead to increased recycling infrastructure, an EPR program is unlikely to result in an immediate investment in textile recycling technology and will not be able to develop recycling infrastructure quickly due to a lack of implementable, scalable solutions, including within Washington State (personal communications, September-October 2025). SHB 1420 would require a PRO to prioritize facilities located closer to the point of collection to minimize transportation-related emissions and to increase accountability for covered products. Some key informants stated that any infrastructure to support an EPR program for apparel and textile articles should be location-based and should build on community culture, values, and interest in the program (personal communications, September 2025). For example, key informants stated that there should be investment in local and community-based collection, sorting, and textile recycling startup companies (personal communications, September 2025).

However, all key informants stated that, if SHB 1420 were to pass, recycling infrastructure would likely not be developed in Washington State (personal communications, August-October 2025). Some key informants suggested that, since California is a larger market, has passed the Responsible Textile Recovery Act, and is ahead of Washington State in developing an EPR program for apparel and textile articles, textile recycling infrastructure may be developed in California that could serve the region (personal communication, SPU, September 2025). Some key informants suggested that other states may develop infrastructure that could serve Washington State (personal communication, August-October 2025). There are some textile recycling startup companies in the U.S., including in North Carolina, Ohio, Oregon, and Texas, (personal communications, August-October 2025). For example, while the West Coast does not have any commercial-scale yarn spinners (i.e., a textile-to-textile recycling process), this process is being developed in Texas and North Carolina, where there is existing infrastructure (personal communication, CPSC, September 2025). Shipping textiles (often multiple times) across the country or internationally between collectors, sorters, preprocessors, and recyclers would be a large expense.[50] Key informants noted this approach may not be an economical way to manage recycling, especially for smaller businesses (personal communication, Global Neighborhood, October 2025). Key informants also stated that exporting apparel and textile articles for recycling in other states or countries could also create negative impacts in communities outside Washington State (personal communication, SPU, September 2025). See "Scope" for additional discussion of potential environmental and health impacts outside of Washington State, including internationally.

Some key informants stated that textile recycling infrastructure would likely need to be developed regionally or nationally (personal communications, August-October 2025). Generally, key informants stated there is no known comprehensive research or modeling to show that textile recycling could be economically feasible in the U.S. (personal communications, August-October

2025). In addition, there are no examples of successful grant programs to develop textile reuse and recycling infrastructure at scale in the U.S. (personal communication, American Circular Textiles, August 2025).

Evidence also suggests textile recycling on a large scale is not economically viable in the U.S.[1,10,50] There are 3 main barriers to developing economically viable post-consumer textile-to-textile recycling in the U.S.[50] First, a high volume of feedstock is needed to operate textile recycling (personal communication, Accelerating Circularity, October 2025) and usable recycling feedstock is lost at every step of the processing chain.[50] Collection infrastructure is fragmented and focused on reuse; consumer participation is low; and collected material cannot be sorted and aggregated to meet strict input specifications (e.g., sizing) necessary for textile recyclers.[12,13,50] One survey found that 81% of textile recyclers surveyed reported experiencing challenges sourcing circular raw materials.[50] Moreover, currently, businesses and nonprofits must pay for apparel and textile articles to be recycled by startup companies, which makes it economically challenging for these organizations to recycle products (personal communications, October 2025) and may make it challenging for startup companies to receive sufficient product for research and development.

Second, there are high production costs associated with recycling apparel and textile articles (personal communication, Accelerating Circularity, October 2025). The current system relies heavily on manual sorting, costly preprocessing steps, and capital-intensive recycling technologies, all operating well below economic scale.[13,50] Moreover, textile transportation is costly, further reducing profitability for sorters and recyclers.[50]

Third, there is not sufficient demand from consumers and brands for recycled material in apparel and textile articles (personal communication, Accelerating Circularity, October 2025), or recycled content from textile sources specifically.[13] For example, one study noted "almost all recycled polyester [in clothing articles] is from recycled PET bottles not recycled polyester."[13] Price premiums, uncertain quality, and limited traceability of recycled fiber contribute to limited brand demand.[50] Specifically, "brands are wary of sourcing chemically recycled fiber without data on traceability and third-party certification."[50] Traceability for recycled fiber content (both chemical and mechanical) can help build trust to address concerns about quality, performance, and authenticity as well as help meet environmental and social criteria.[50]

Without sufficient demand from consumers and brands for recycled content in textile articles, there is limited material available to enter the recycling stream (personal communication, Accelerating Circularity, October 2025). Moreover, it is more economical to produce a new item than to purchase recycled material to produce an item, especially for lower-price and lower-quality apparel and textile articles.[12,13,50] Specifically:

> the cost to recover and recycle textiles currently exceeds the costs associated with using primary [new or raw] materials in textiles. Until efficient and cost-effective recycling processes are scaled, recovered and recycled textile will be unable to compete in the mainstream market.[5]

Researchers have called this "the circular premium", which is described as the "difference in price for a circular product (e.g., made from bio-based or recycled materials) than a traditionally manufactured product."[1] Evidence suggests consumers are unwilling to pay this higher price, especially as fast fashion produces low-cost clothing.[1]

Key informants stated that an EPR program for apparel and textile articles may increase demand for recycled material, increase feedstock (i.e., by diverting product currently going to landfill), and improve efficiency within the recycling system (personal communication, Accelerating Circularity, October 2025). For example, SHB 1420 would require producers of apparel with more than $100 million in annual worldwide gross income to report to Ecology the amount and type of recycled content in each covered product. Investments in an EPR program may also drive technology, which could improve efficiency in collecting and sorting and lower production costs (personal communication, Accelerating Circularity, October 2025). Overall, key informants stated that textile recyclers will need to grow and expand before they can become profitable, which may require large investments in infrastructure development (personal communications, September-October 2025).

Given challenges with developing and financing recycling infrastructure in the U.S., key informants stated that infrastructure development would likely occur overseas (e.g., Europe, India, Vietnam) (personal communication, AAFA, October 2025). Key informants stated that recycling infrastructure should be prioritized in locations closest to the point of generation, near where apparel and textile articles are cut and sewn, so that recyclers can work with manufacturers and the process can be streamlined and more efficient (personal communications, October 2025). Since 97% of clothing sold in the U.S. is manufactured overseas, it is unlikely textile recycling companies would locate in the U.S. (personal communication, AAFA, October 2025).[2,4] However, key informants also noted that current textile collection, sorting, and recycling businesses in other countries are struggling economically as fees to collect, sort, and recycle products have been insufficient to carry out these programs (personal communication, American Circular Textiles, August 2025).[19] For example, "France's EPR for [t]extiles, one of the most established textile EPR systems, has struggled with massive textile stockpiles due to a lack of viable processing solutions, primarily because of insufficient investment in recycling infrastructure."[29]

Lastly, key informants stated that recycling technology must continue to evolve over time, as products that were not considered recyclable in the past may be recyclable now or may become recyclable in the future (personal communication, AAFA, October 2025). Recycling infrastructure must also account for new regulations, such as restrictions on certain chemicals (e.g., PFAS) (personal communication, AAFA, October 2025). This evolving technological and regulatory landscape requires ongoing research and investment into recycling technology and infrastructure.

Export

Key informants stated that, without additional or adequate infrastructure, SHB 1420 may lead to an increase in warehousing, storing, or exporting apparel and textile articles (personal communications, August-October 2025). In the U.S.:

> [the] majority of the nearly 15[%] of articles collected in the [U.S.] are sold to low-income regions around the world for resale. Only [1%] of textile waste collected for new end markets goes to fiber-to-fiber recycling. This represents not only a loss of economically valuable material but also has negative social and environmental impacts.[14]

It is well-documented that the apparel and textile industries, including manufacturing, production, and waste management, negatively affect health and environmental outcomes, particularly in the Global South (personal communications, August-October 2025).[10] See

"Scope" for additional discussion of health and environmental impacts outside Washington State, including internationally. Other studies have found that as much as 91-95% of collected, reusable apparel and textile articles in the U.S. are exported internationally.[10,13]

Researchers have stated that reporting on material flows in the textile waste stream is complex, scattered, inconsistent, incomplete, and unreliable, resulting in a lack of " crucial insights into these global material flows and where discarded textiles ultimately end up."[13] Moreover, while "reuse exports lead to increase value capture and [use] of clothing, they also cause a disproportionate waste management burden on importing countries, which often lack infrastructure to manage clothing when it is no longer reusable."[13] For example, in Ghana, "the importation of used clothing increased by 140.5% between 2000 and 2021, while waste management infrastructure for textiles has remained stagnant."[13]

Many key informants spoke about the complexities of the global apparel and textile article export system (personal communications, September-October). Businesses often do not know what happens to apparel and textile articles once they are baled for the commodity market and leave their establishment (personal communications, September-October 2025). For example, vendors who purchase apparel and textile commodities: may sell the product in-state, in the U.S., or internationally for additional sorting or grading for reuse or recycling; may landfill the product domestically; or may export the product to countries which may or may not have waste management capacities or sanitary landfills (personal communications, August-October 2025). Researchers have stated:

> [d]etails about end markets, including the grading and processing of textiles that are baled and sold, are largely proprietary. Information such as relationships, contracts, and data including final destinations for specific streams of materials is not reported publicly and is often unavailable to the sellers of textile bales.[65]

SHB 1420 would require a plan to describe how a PRO will minimize negative environmental and health impacts of operations, including impacts from covered products exported outside Washington State. Many key informants noted that Washington State does not have authority or jurisdiction to regulate industries outside the state and SHB 1420 may not shift apparel and textile article exports or chains, which may not address health and environmental concerns in the Global South (personal communications, September-October 2025). Some key informants stated that it may be more environmentally responsible to landfill apparel and textile articles in Washington State until recycling infrastructure exists, rather than increase exports (personal communications, September 2025). Some key informants also expressed concern that businesses in Washington State who export product out of the state could be held responsible for anything that happens to the product down the line, even if the business is unable to track where product may go (personal communication, AWB, September 2025).

Secondhand businesses and nonprofits also rely on exports of apparel and textile articles as commodities for revenue (personal communications, August-October 2025). While commodity prices fluctuate and are typically "pennies on the pound" (e.g., \$0.08-\$0.20 per pound of product), secondhand businesses rely on exporting product as commodity for a percentage of their profit (personal communications, October 2025). Moreover, key informants noted that not being able to sell product on the commodity market could result in additional product being landfilled (personal communications, October 2025). Key informants stated that, from an economic standpoint, secondhand businesses receive profit from exporting on the commodity market but must pay to send apparel and textile articles to a recycler (personal communications, October 2025). Therefore, without additional supports to transition to reuse or repair markets or to a recycler, businesses may struggle to reduce exports as shifting from exports may reduce profit.[19] See "Scope" for additional discussion of non-regulatory supports.

Landfill

SHB 1420 would require a PRO to maximize reuse and recycling and minimize disposal of collected covered products. Generally, EPR programs aim to reduce waste sent to landfills by recovering, reusing, and recycling products and reduce public spending on waste management by requiring producers to pay for recycling.[18] However, "failing to support necessary recycling technologies or create scalable infrastructure [as part of an EPR program], […] risks continued reliance on landfills."[29]

Based on 2018 data (the most recent data available) from the U.S. Environmental Protection Agency (EPA), textile material accounted for 5.8% of total municipal solid waste in the U.S.[21] In 2020-2021, Ecology conducted a statewide study of disposed waste in Washington State.[32] Ecology estimated that textiles accounted for 4% (about 188,132 tons) of overall statewide disposed waste.[32] Commercial textile waste includes a large percentage of articles like linens (e.g., sheets) and towels (personal communication, SPU, September 2025). One study found that the hospitality industry in Washington State generates 539,773 pounds of discarded hotel linens per year in the state, with the majority landfilled.[10] Currently, businesses and nonprofits must pay to landfill apparel and textile waste (personal communications, September-October 2025).

Apparel and textile waste is:

> a growing issue, both in the U.S. and around the world. Domestically, [U.S.] textile waste has grown 80% since 2000 and is [the] nation's fastest growing waste stream. [The U.S.] send[s] over 30 billion pounds of textile waste to […] landfills and incinerators annually.[9]

Communities living near landfills are more likely to be communities of color, people with lower economic wealth, families with a female head of household, and communities with disaster experiences.[72-74] These communities also experience worse air, water, and noise pollution and worse health outcomes.[72-74] Meanwhile, research shows that "people living in areas with higher incomes, that are more racially segregated, and that have more clothing stores generate significantly more textile waste than people in other areas."[75]

Due to population growth, the overall amount of trash entering the waste stream is increasing.[66] Key informants anticipated that an EPR program for apparel and textile articles may reduce or maintain the percentage of apparel and textile articles being landfilled (personal communications, September 2025). However, key informants also stated that the current funding mechanisms for solid waste management in Washington State are based on disposal fees and, if the volume of trash is reduced, the amount of funding that counties have to manage landfills, diversion, or recycling programs may also be reduced (personal communication, WSAC, September 2025).

Key informants stated that, even with a circular economy, a percentage of apparel and textile articles may continue to be landfilled (e.g., articles that are soiled or unsafe for handling or recycling) (personal communications, August-October 2025). For example, in 2024, Goodwill of the Olympics & Rainier Region received a total of 60 million pounds of all types of donations, including apparel and textile articles (personal communication, Goodwill of the Olympics & Rainier Region, October 2025). While the organization was able to resell or recycle 87% of those donations and divert them from the landfill, 13% could not be sold in stores, outlets, or on the salvage market and were landfilled (personal communication, Goodwill of the Olympics & Rainier Region, October 2025). Key informants emphasized that end markets must exist in order for product to be reused, resold, or recycled (personal communications, September-October 2025). Key informants from city and county solid waste management and recycling programs also anticipated that a percentage of apparel and textile articles may continue to be landfilled, even if textile recycling was widely available (personal communications, September-October 2025).

Overall, there is little to no existing textile recycling infrastructure in the U.S., including infrastructure to collect, sort, grade, or recycle apparel and textile articles at a scale to support an EPR program for apparel and textile articles (personal communications, August-October 2025). Moreover, existing sorting and recycling infrastructure cannot be used for textiles; no scalable sorting and recycling infrastructure for textiles currently exists in the U.S.; no other apparel and textile EPR program exists in the U.S.; and there is no evidence how the creation of an EPR program for apparel and textile articles in the U.S. may impact infrastructure or whether SHB 1420 may result in infrastructure development in Washington State. Since it is not possible to predict how SHB 1420 may impact infrastructure for apparel and textile reuse and recycling in Washington State, there is unclear evidence how increased collection of apparel and textile articles for reuse and recycling may impact reuse and recycling of apparel and textile articles.

Additional considerations

This Health Impact Review focused on the most linear pathway between provisions in the bill and health outcomes and equity. Evidence for how SHB 1420 may impact reporting of chemical composition is discussed below.

Reporting chemical composition

SHB 1420 would require producers of apparel to annually disclose specified information to Washington State Department of Ecology (Ecology) beginning January 1, 2027, including the presence of specified chemicals in covered products and environmental impact activities. Producers of apparel whose worldwide gross income exceeds $100 million must disclose additional specified information to Ecology. Because there is limited research on the current chemical composition of apparel and textile articles and because the bill provisions only require disclosure and reporting, this pathway was not included in the Logic Model.

Section 13 of SHB 1420 would require producers of apparel to annually disclose and identify each product that contains a high priority chemical identified under RCW 70A.430.040 or a priority chemical as defined in RCW 70A.350.010, or that is subject of a rule adopted under Chapter 70A.350 RCW. Chapter 70A.430 RCW is also known as the Children's Safe Products Act. High priority chemicals identified under RCW 70A.430.040 include chemicals that: 1) have been found through biomonitoring studies that demonstrate the presence of the chemical in human umbilical cord blood, human breast milk, human urine, or other bodily tissues or fluids; 2) have been found through sampling and analysis to be present in household dust, indoor air, drinking water, or elsewhere in the home environment; or 3) have been added to or is present in a consumer product used or present in the home. Priority chemicals as defined in RCW 70A.350.010 include perfluoroalkyl and polyfluoroalkyl substances (PFAA and PFAS); phthalates; organohalogen flame retardants; flame retardants, as identified by Ecology under [Chapter 70A.430 RCW](); phenolic compounds; polychlorinated biphenyls; 6PPD; or a chemical identified by Ecology as a priority chemical under [RCW 70A.350.020](). Chemicals that are subject of a rule adopted under Chapter 70A.350 RCW are part of the Safer Products for Washington program.

Globally, the apparel sector is one of the most polluting and natural resource-intensive industries.[9] Apparel and textile production is associated with high water consumption; water and soil pollution; intense energy use; extensive land use; loss of land, habitat, and biodiversity; microfiber and microplastic pollution; and the release of greenhouse gas (GHG) emissions and other pollutants.[10,11,13] The majority of apparel and textile articles sold in Washington State are not produced in Washington State (personal communication, Ecology, August 2025). Further, 97% of apparel sold in the U.S. is manufactured outside the U.S.[2,4] While much of the apparel industry's global impact occurs from fiber production through garment assembly,[12] there are also environmental and health-related impacts to consumers.

Researchers have stated, due to the complex production and supply chain of the textile industry, which includes "spinning, dyeing, finishing, and distribution, [the textile industry] relies substantially on synthetic chemicals, many carrying significant environmental and health risks."[57] For example, synthetic fabrics frequently include chemical additives (i.e., dyes, flame retardants, softeners, and toxic metals),[57] and textiles with properties such as ultraviolet-blocking, moisture-wicking, antibacterial, and abrasion-resistance require chemical additives.[76] Plastic-based textiles, including polyester, nylon, and elastane, experience microfiber fragmentation during manufacturing, wear, and laundering, resulting in microfiber and microplastic pollution.[9] Estimates of the number of different chemicals used in textile manufacturing vary. The Swedish Chemicals Agency identified over 1,900 chemicals used during the production of clothing.[8] The United Nations Environment Programme (UNEP) cites evidence that an estimated 15,000 chemicals are used in textile manufacturing processes.[77]

Researchers have stated that building traceability of chemicals used in the production of apparel and textile articles is critical.[12] Traceability may allow potential impacts to human health and the environment to be identified and addressed, particularly as products remain in a circular economy.[12] Knowledge gained from traceability could also be used to develop end markets for materials and to inform consumers when it is appropriate to direct apparel and textile articles to reuse and recycling.[12]

Key informants stated that, under existing state laws, it has been challenging for Ecology to obtain information about the chemical composition of products used in textiles (personal communications, August-September 2025). The chemical composition of a specific fabric, garment, or textile article is proprietary to the manufacturer, making it challenging to track the chemical composition of a specific garment or textile article (personal communications, September-October 2025). Key informants stated that manufacturers refer to a list of restricted substances when producing apparel and textile articles, and brands may also set stricter restricted substances lists for manufactures to follow (personal communication, American Apparel & Footwear Association [AAFA], October 2025). Therefore, while a brand may know what chemicals are likely not in their products, they may not know the exact chemical composition of their products (personal communication, AAFA, October 2025). For example, a brand may purchase waterproof fabric but may not know what chemicals or components of the fabric make it waterproof (personal communication, Washington State Department of Health [DOH], August 2025). Moreover, key informants stated that contracts between brands and manufacturers may change year-to-year depending on the cost of materials and labor, geopolitical context, and additional factors (personal communication, Washington Retail Association [WRA], September 2025), making it challenging to track product composition.

Synthetic textiles shed microfibers and microplastics throughout their lifecycle, leading to accumulation of these fibers in water and soil, which impact health.[76] For example, "PFAS lifecycle leakage contaminates environments, leading to health risks including certain cancers, thyroid dysfunction, cholesterol changes, and reduced birth weight."[57] Research shows only 20% of brands have published information on microplastics.[8] There is not currently technology available to remove microfibers and microplastics at a large scale from the environment (e.g., by processing wastewater from laundry at sewage treatment plants).[10]

Regarding individual-level health hazards, textile manufacturing poses risks to health through occupational exposure and chemical transfer to consumers.[57] Research has found that microplastic fibers become airborne, especially in urban and industrial areas with high temperatures.[76] Consumers experience increased risk through dermal contact and inhalation of microfibers.[57] Data show:

> consistent epidemiological evidence linking [phthalate ester (PAE)] exposure (especially [di-(2-ethylhexyl) phthalate] DEHP) to reduced sperm quality and attention-deficit/hyperactivity disorder (ADHD) symptoms but noted insufficient or inconsistent evidence for links to cardiovascular disease, thyroid issues, respiratory problems, diabetes, obesity, kidney disease, intelligence deficits or other reproductive system outcomes.[57]

Polyester fabric provides one example of chemical exposure through textiles. The polyethylene terephthalate (PET):

> that is often used to produce polyester, a common synthetic polymer fiber that can be mass-produced relatively affordably through an energy-intensive plastic extrusion process, has been found to pose human health risk through three main pathways: respiratory impedance (i.e. asthma, and allergic reactions), reproductive inhibition, and carcinogenicity. As PET ages naturally, it releases different chemicals, known as phthalate esters (PAEs), that were used in the production to make the fabric either softer or more flexible.[76]

Additional research has found these PAEs can affect thyroid function and synthesis of testosterone.[76]

Regulatory frameworks for chemicals in textiles are inconsistent.[57] For example, there are different regulations in place for various chemicals in the U.S., European Union (EU), Brazil, Spain, China, India, and Bangladesh.[57] In general, "lower-income regions absorb higher chemical risks."[57] Further, many textile contaminants are restricted one at a time, meaning the salts and isomers of chemicals, which may be similarly toxic, are often not regulated.[76] In Washington State, regulation of chemicals in waste is different for companies than for consumers (personal communication, DOH, August 2025). For example, when a carpet company cleans a business, the effluent is treated as hazardous waste, but if they clean a house, it is not considered hazardous waste, even though PFAS levels in the effluent may be similar (personal communication, DOH, August 2025). Key informants stated Washington State regulation of chemicals found in apparel is constantly evolving (personal communication, DOH, August 2025). In 2023, Ecology filed a CR-101 announcing the intention to conduct rulemaking and revise [Chapter 173-337 WAC]: Safer Products Restrictions and Reporting.[35] The intent of rulemaking is to adopt restrictions and reporting requirements related to the intentional use of PFAS in specified products, including apparel and accessories manufactured, distributed, and sold in Washington State.[35]

Children and infants and people with low-income experience health inequities related to chemical composition of textiles. Children and infants "have heightened susceptibility due to immature detoxification pathways and extended skin contact duration with garments."[57] Potentially harmful chemical compounds are found in infant and children's clothing.[57] In a study that analyzed stain-resistant school uniforms, concentrations of PFAS ranged widely, where the median level was 117 nanograms per gram of material.[57] The highest concentration was measured 153,000 nanograms per gram of material.[57] The study also found that approximately 3 tons per year of PFAS are used in producing children's uniforms in the U.S.[57] Research also highlights risks of phthalate exposure "during critical developmental windows (prenatal/early postnatal), potentially disrupting neuroendocrine systems (e.g., thyroid signaling) and increasing risks of neurodevelopmental conditions (ADHD, autism, reduced IQ)."[57] Microplastic textiles provide less expensive clothing options, making these products more readily available to people with low income.[76] As a result, people with low income may experience higher rates of exposure to chemicals found in textiles.

Some key informants suggested there is tension between reusing, recycling, and removing harmful chemicals from apparel and textile articles (personal communications, August 2025). Research shows textile reuse and recycling reduces environmental impacts compared to incineration and landfilling and that reuse is more beneficial than recycling.[78] However, key informants stated reusing or recycling apparel and textile articles that contain harmful legacy chemicals may continue to expose consumers and workers to microfiber pollution and hazardous chemicals (personal communications, August-September 2025). Data show recycled textiles retain 87% of original additives like DEHP.[57] Further, recycled textiles contain 1.8 times higher Bisphenol A (BPA) levels than conventional items.[57]

However, research has also suggested that most microfiber fragmentation occurs during the laundering of new apparel and textile articles, and secondhand items release fewer microfibers.[9] The aging of a garment and laundering may affect chemical compounds in textiles in different ways. Generally, the aging of a garment and washing release PFAS into the environment.[57] A study examining laundering of a new microfiber polyester fleece textile found that fiber emission decreased, then stabilized over the course of 10 mild successive washing cycles.[79] The study found that use of detergent and softener did not significantly influence emission, but release of fibers was about 3.5 times higher during tumble drying than during washing.[79] Some key informants stated it is better to purchase a reused clothing item made from synthetic fibers rather than purchase a new item made from the same material, since it has already gone through the shedding process (personal communication, Remakery, October 2025).

Overall, chronic exposure to chemical mixtures in apparel and textile articles is not well understood. Acute effects on health like allergies are recognized in the literature, but "long-term systemic health consequences of chronic, low-dose exposure to complex chemical mixtures in clothing remain largely uncharacterized and potentially substantial."[57] Researchers have stated there is a need for additional research on health impacts of chemical compounds in textiles.[57]

SHB 1420 would require disclosure and reporting of certain chemicals. Key informants stated reporting would help add to the knowledge base and safe management of apparel and textile articles (personal communications, August-September 2025). For example, the Children's Safe Products Act only pertains to children's apparel and SHB 1420 would expand reporting to include additional apparel products (personal communication, DOH, August 2025). Microfibers are not currently considered a priority chemical, meaning there is not a consistent definition and limited data are gathered for these compounds (personal communication, DOH, August 2025). It is currently unknown what percentage of microplastic pollution is attributable to apparel and textile articles (personal communication, DOH, August 2025). Reporting requirements of SHB 1420 may increase understanding of microfibers and microplastics in apparel and textile articles (personal communication, DOH, August 2025).

Implementation of SHB 1420 may also indirectly motivate or pressure some producers to remove certain chemicals from products so that they do not have to disclose and report (personal communications, August-September 2025). However, SHB 1420 does not include provisions that limit or ban chemical components in textiles (personal communications, August-September 2025). Rather, HB 1420 would require a plan submitted by a PRO to include strategies to address design challenges, including composability, reduction and removal of harmful chemicals, microfiber and microplastic shedding, and mixed material blends. Some key informants suggested eco-modulation, depending on how it is implemented, may incentivize the removal of harmful chemicals from manufacturing processes (personal communications, August-October 2025). See "Scope" for additional discussion of eco-modulation.

Since there is limited research on the current chemical composition of apparel and textile articles and because the bill provisions only require disclosure and reporting, this pathway was not included in the main Logic Model pathway.

Annotated References

1. **Schumacher K.A., Forster A.L. Textiles in a circular economy: An assessment of the current landscape, challenges, and opportunities in the United States. *Frontiers in Sustainability.* 2022;3.**
The National Institute of Standards and Technology (NIST) published a seminal article about a textile circular economy in the U.S. The authors "discuss challenges and opportunities with the current textiles recovery system in the [U.S.] and outline resources necessary to facilitate the transition to a [circular economy] in the U.S."

2. **Vatz S. Why America Stopped Making Its Own Clothes. *KQED*2021.**
In 2013, KQED published an article called "Why America Stopped Making Its Own Clothes." The article was updated in 2021. Prior to the 1980s, approximately 70% of clothes purchased in the U.S. were made in the U.S. In 2021, only 2% of clothes purchased in the U.S. were made in the U.S. Beginning in the 1980s, domestic labor costs and trade policies shifted clothing manufacturing out of the U.S.

3. **A Timeline of Textile History. 2025; Available at: https://textileheritagemuseum.org/textiles-ancient-times-to-modern-day/. Accessed 10/28/2025.**
The Textile Heritage Museum provides a timeline of textile history from 6000 B.C. to 2009, including key events shaping the U.S. textile industry.

4. **Holman J. Where Textile Mills Thrived, Remnants Battle For Survival. *The New York Times.* 1/24/2024, 2024.**
This article from The New York Times examines the history of the U.S. textile industry and the impact of tariffs .

5. **Technology National Institute of Standards and. Standards Needs for Circular Textiles Workshop Report.2024.**
ASTM International, the National Institute of Standards and Technology, and the American Association of Textile Chemists and Colorists published a report identifying a need to develop standards to support a circular textile economy. Specifically, the groups identified a need to develop standards related to terminology; sorting and grading; recycling; design for circularity; labeling; and digital product passports.

6. **Cotton and Wool -- Cotton Sector at a Glance. 2025; Available at: https://www.ers.usda.gov/topics/crops/cotton-and-wool/cotton-sector-at-a-glance#:~:text=The%20United%20States%20plays%20a,End%20uses. Accessed 10/24/2025.**
This U.S. Department of Agriculture webpage provides information about U.S. cotton production, exports, and imports.

7. **Williams B., Porter J.M. Cotton, Whiteness, and Other Poisons. *Environmental Humanities.* 2022;14(3):499–521.**

In this article, Williams & Porter provide an overview of "how racial capitalism has shaped the ecological and technological dynamics of cotton production in the United States South." The authors provide a discussion of historical practices and growth of the U.S. cotton industry and connections to chattel slavery, anti-Black racism, and environmental injustice.

8. **Foundation Eileen Fisher. Fashion's Waste Crisis and How to Solve It.Hey Fashion. 2021.**
The Eileen Fisher Foundation commissioned this report, which was written by Pentatonic. The report outlines global textile waste and promotes circularity within the textile industry. The report includes information about the current fashion industry, textile supply chain, brands, engagement with community, policy strategies, and ways to finance circularity. The report presents 8 priority actions to acheive circularity and reach net-zero emissions.

9. **Textiles American Circular. The United States' Opportunity For Circular Fashion: A Public Policy Case for Innovation, Jobs, Supply Chain Protection, and Consumer and Economic Development.2023.**
American Circular Textiles is a coalition of fashion industry organizations working to promote circular fashion industry through public policy education. This paper: 1) summarizes the environmental, financial, and health impacts of the fashion industry on U.S. communities; 2) "consider[s] the benefits of increasing U.S. consumer demand for reuse, and further enabling businesses and individuals to participate in resale, while building markets that do not yet exist at scale, like textile recycling"; and 3) proposes potential circular fashion public policy levers to "protect U.S. supply chains, support economic competitiveness, enable job creation and empower consumers." As part of this work, American Circular Textiles discusses EPR for textiles.

10. **Pierce County Planning & Public Works Office of Resilience and Climate Action, Environmental Education. Behind the Seams: The Hidden Cost of Fast Fashion. 2025.**
Pierce County Planning & Public Works hosts community education classes as part of their Earth Matter Series. In October 2025, Pierce County hosted a 4-part series titled "Behind the Seams: The Hidden Cost of Fast Fashion." The series was held virtually and in-person and explored topics related to the fast fashion industry, including global, health, and environmental impacts.

11. **Office United States Government Accountability. Textile Waste: Federal Entities Should Collaborate on Reduction and Recycling Efforts; Report to Congressional Requesters. 2024.**
The United States Government Accountability Office (GAO) published report in December 2024, at the request of Congress. GAO was asked to review and desribe: "(1) how textile waste affects the enviroment; (2) how and why the rate of textile waste in the U.S. has changed in the last 2 decades; and (3) federal actions to reduce textile waste and advance textile recylcing, and what opportunities exist for entities to collaborate." GAO recommended Congress provide direction to federal entities to coordinate and take action to reduce textile waste and advance textile recyling. The report also included 7 recommendations to 6 specific federal entities.

12. **In: Ecology WSDo, ed. *Unraveling the Textile Industry for a Regenerative Washington, 4-part webinar series*2025.**

In Spring 2025, Washington State Department of Ecology hosted a 4-part webinar series, “Unraveling the Textile Industry for a Regenerative Washington.” Part 1, "Cut from the Same Cloth: Level Setting" established baseline knowledge of the textile industry, introduced circularity and related business models, and aligned key terminology and frameworks. Part 2, "Ripping the Stitch: Business Transformation" included Pacific Northwest leaders' real-world examples of the motivations that drives businesses to circular practices, barriers faced, adn lessons learned. Part 3, “Hemmed in to Cutting Loose: Adopting New Innovations” explored infrastructure, logistical, and economic barriers to scaling innovation in apparel and textile reuse and recycling.

13. **Foundation Ellen MacArthur. Pushing the boundaries of EPR policy for textiles.2024.**
In this report, the Ellen MacArthur Foundation outlines the current state and future opportunities for Extended Producer Responsiblity (EPR) programs to contribute to a circular economy for apparel and textile articles. The report focuses on efforts in Chile, European Union Member States, Ghana, India, Kenya, Tunisia, and the U.S.

14. **Carper, Boozman Lead Recycling Roundtable on Improving Textile Circularity [press release]. Minority News2023.**
In October 2023, the U.S. Senate Recycling Caucus held a roundtable to explore opportunities for textile recycling, resale, repair, and reuse in the U.S. The roundatble was held by Senators Tom Carper (D-Del.) and John Boozman (R-Ark.) and included U.S. Represenatives, organizations, and the global fashion industry.

15. **EPR By Product. 2025; Available at: https://productstewardship.us/. Accessed 8/22/2025.**
The Product Stewardship Institute (PSI) maintains current data related to Extended Producer Responsiblity (EPR) programs in the U.S., including information about EPR programs for textiles.

16. **Legislature Washington State. House Bill Report: HB 1420. 2025.**
The House Bill Report for HB 1420, Establishing producer responsiblity for textiles, includes background information, a summary of the provisions SHB 1420, and a summary of public testimony.

17. **Reducing & Recycling Waste. 2025; Available at: https://ecology.wa.gov/waste-toxics/reducing-recycling-waste. Accessed 8/15/2025.**
This Washington State Department of Ecology webpage provides information about recycling programs in the state, including extended producer responsibility (EPR) programs and the Recycling Development Center.

18. **Extended Producer Responsibility. 2023; Available at: https://www.ncsl.org/environment-and-natural-resources/extended-producer-responsibility#:~:text=EPR%20promotes%20an%20approach%20to,new%20products%20at%20higher%20rates.&text=Requiring%20producers%20to%20pay%20for,creating%20a%20more%20efficient%20system.&text=EPR%20seeks%20to%20incentivize%20prod**

ucers,reuse%2C%20recycling%20and%20reduction%20opportunities. Accessed 8/22/2025.
The National Conference of State Legislatures provides information about state action related to extended producer responsiblity through October 24, 2023.

19. **Kibbe Rachel. Discover how policy shapes the future of fashion. In: Ecology WSDo, ed. *Common Threads: Textile Listening Series webinar*2025.**
Washington State Department of Ecology hosted the "Common Threads: Textile Listening Series" webinars. The October 2, 2025, webinar featured Rachel Kibbe, American Circular Textiles. The webinar discussed secondhand marketplaces, tax structures, and opportunities to grow secondhand and reuse markets, including some Washington State-specific information.

20. **Nicolaus T. Textile waste a growing issue as Americans consume more. *The Nation's Health.* 2025;55(3):1–8.**
Nicolaus published this article outlining textile waste in the U.S. The article includes statistics on global and national textile waste, and innovative strategies to address the issue.

21. **Textiles: Material-specific data. 2024; Available at: https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/textiles-material-specific-data#TextilesTableandGraph. Accessed 8/22/2025.**
The U.S. Environmental Protection Agency (EPA) measures the generation, recycling, composting, combustion with energy recovery, and landfilling of textile material in municipal solid waste. This webpage provides a summary of 2018 data (the most recent data available).

22. **Sicurella Savannah. When Second Hand Becomes Vintage: Gen Z Has Made Thrifting A Big Business. *NPR.* 6/18/2021, 2021.**
In 2021, NPR reported that thrifting had transformed into a $28 billion industry in the past decade, and was expected to eclipse fast fasion by 2029. The rise in thrifting was boosted by social media influencers and Generation Z, "whose members embraced second hand fasion faster than any other age gorup and account for over 40% of global consumers." Additionally, social media platforms provide informatoin about the conditions and impacts of the fast fashion industry, from exploitative working conditions to landfill waste. The reporter cites the 2019 State of Fashion report which indicated "environmental sustainability has become a significant priority influencing the shopping choices of young consumers."

23. **Andersen A. The Conscious Consumer: Is Thrifting Actually Ethical? *The Mich.* Vol 72021.**
This student-written article notes that thrifting's popularity significantly rose between 2019-2021, particularly among Gen Z. The author states that thrifting is both cheaper and more sustainable than buying clothes first hand. Fast fashion's waste, water usage, greenhouse gas emissions, and deadly events (e.g., 2013 factory collapse in Bangladesh) have contributed to the shift towards more ethical consumption. The author noted that some people argue that increased popularity of thrifting among people with higher-income has prompted rising prices among thrift stores making previously accessible secondhand items less affordable for people with lower incomes. Thrifting as a rising trend among wealthier people contrasts with the fact that purchasing secondhand "has historically been stigmatized for the poor."

24. **Where is the Secondhand Clothing Market Headed? 2022; Available at: https://theharrispoll.com/briefs/secondhand-clothing-market/. Accessed 10/13/2025.**
This brief from The Harris Poll briefly summarizes findings from its Secondhand-clothes Survey. The Harris Poll conducted the survey online in the U.S. from June 24 to June 27, 2022. A total of 1,073 respondents participated. Company analysts weighted figures (as necessary) for age, sex, race and ethnicity, education, region, household income, and propensity to be online to align them with their actual proportions within the U.S. population. Respondents for this survey were selected from a pool of potential respondents who have agreed to participate in The Harris Poll's online research. For this study, the sample data is accurate to within +/- 4.0 percentage points using a 95% confidence level. Health Impact Review analysts also reviewed the underlying data to incorporate additional insights not outlined in the brief.

25. **Rhodes Sharon. The surprising truth about Gen Z's shift from malls to thrift shops. *The Seattle Times.* 1/27/2025, 2025;Food & Drink.**
This article reports that "[t]oday's teenagers and young adults are searching for the perfect finds in thrift stores." Gen Z is buying secondhand more often for surprising reasons: saving money, sustainability, creative ideas, social connection, and a sense of nostalgia. For context, "[o]lder Gen Zers experienced a financial downturn as children, and now the generation is entering the adult world in a time of rising costs." Gen Z shops in physical stores at the same rate as baby boomers and more than millenials, and 83% of Gen Z is willing to shop thrifted goods. Gen Z's thirfting lifestyle is influenced by "social media, sustainable living, and the thrill of the hunt on a budget." Vogue has reported that "Gen Z is leading the push for more eco-friendly and ethical fashion choices."

26. **Goodwill. Thrift vs. Fast Fashion: Why Gen Z Is Choosing Secondhand.**
This Goodwill Blog explored Gen Z (those born from the late 1990s to early 2010s), fashion preferences, young consumers' thrifting practices, the impact of fashion on the environment, thrift culture, and fast fasion. It notes that "Gen Z, in particular, is gravitating towards thrift shopping as a way to express individuality while promoting eco-friendly practices." Social media plays a role in shaping Gen Z's fashion choices and thrifting as a lifestyle. Thrifting is both cost-effective and sustainable in that it reduces waste by contributing to circular economy. The author indicated that thrifting resonates with Gen Z, "who value authenticity and uniqueness in their fashion choices." The author noted, "[e]xperts predict that the secondhand clothing market will reach an astonishing $64 billion by 2024, driven by a growing awareness of environmental issues and the desire for unique fashion finds."

27. **Shopping Capital One. Thrifting Statistics. 2025.**
This Capital One Shopping Research report provides statistics on thrifting. Based on data available September 10, 2025, 16% to 18% of people in the U.S. shop at thrift stores each year; 12% to 15% shop at consignment or resale stores; and 93% of people in the U.S. shop online for secondhand items. There are more than 25,000 resale, consignment, and not-for-profit resale shops in the U.S. Roughly 1/3 thrift stores in the U.S. are non-profit organizations. According to the U.S. Census Bureau, there are 581 thrift stores in Washington State. Approximately 1/3 of clothing and apparel items purchased in the U.S. over the past year were secondhand. The number of secondhand apparel items purchase in the U.S. increased 40% from 2021 to 2022. As

of 2025, the U.S. secondhand market is worth an estimated $56 billion, an increase of 14.3% from 2024. Traditional thrift and donation is projected to account for $26 billion (46.4% of the secondhand market) with resale accounting for $30 billion (53.6% of the market). Since 2018, the U.S. secondhand market has grown by 143.5%. While the majority of that growth has occurred in resale (650% increase since 2018), traditional thrift and donation has also grown by 36.8% over that timeframe. As of 2023, 19,466 used merchandise stores in the U.S. employed 222,478 people. Younger generations are expected to account for more than 2/3 of secondhand market growth in the next 5 years. For example, 83% of Gen Z consumers have either purchased or are interested in secondhand apparel. Older consumers are less likely to purchase secondhand apparel (16.6% of consumers ages 45 to 54 adn 11.8% of consumers ages 55 to 64 purchasing secondhand). Additional data are provided for types of thrift shopping, online thrifting, gift thrifting, and environmental impact.

28. **ThredUp. ThredUp Resale Report. March 2025 2025.**
This 2025 annual Resale Report from ThredUp included data and research from GlobalData, a third-party retail analytics firm. Its assessment of the secondhand market is derived from consumer surveys, retail tracking, official public data, data sharing, store observation, and secondary sources. Additionally, GlobalData conducted a January through February 2025 survey fo 3,034 U.S. adults aged 18 and older focused on questions related to their behaviors and preferences for secondhand. The firm also surveyed the top 50 U.S. fasion retailers and brands during the same time period to gather opinions on resale. The report addressed Global and U.S. market sizing, buyer trends, tariff and trade implications, seller trends, branded resale, social commercie, AI's impact on resale, and industry request for government support to help manage textile waste. It states, "[i]n 2024, the U.S. secondhand apparel market grew 14% – 5X faster than the broader retail clothing market." Meanwhile, resale grew 8X faster in 2024 than the broader retail clothing sector. Additionally, a record number of shoppers bought secondhand in 2024 (58% of consumers; 68% of younger generations). New government policies around tariffs and trade are expected to drive secondhand markets. Retail executives expect new tariffs and trade policies to disrupt thier global supply chain (80%) and believe resale offers a more stable and predictable source of clothing in the face of potential tariff fluctuations (54%). Meanwhile, consumers expressed concern that such policies may make apparel more expensive (62%) and indicated that they would seek more affordable options like secondhand if that is the case (59% overall, 66% of younger generations). Overall, 66% of retail executives reported struggling to manage textile waste; 78% say it is important to explore innovative business models (like resale) that drive circularity; and 72% are seeking new ways to extend the lifecycle of apparel (resale, upcycling, and repair) (36% are doing so in response to new regulation around managing textile waste).

29. **Textiles American Circular. A National Blueprint for Effective EPR.2025.**
American Circular Textiles developed “A National Blueprint for Effective EPR.” The report discusses challenges, benefits, and promising components to developing a EPR program for apparel and textile articles in the U.S.

30. **Management Washington State Office of Financial. Crosswinds Ahead: The Turbulent Tariff Toll on Washingtonians.2025.**

The Washington State Office of Financial Management (OFM) published a report examining potential impacts of federal tariffs on Washington State. Specifically, OFM modeled anticipated impacts of "Liberation Day" tariffs imposed in 2025 through 2029. OFM's model estimated the direction and scale of likely impacts, and did not account for factors like enforcement variability, global market responses, behavioral responses to tariffs, etc. The analysis controlled for broader macroeconomic variables to isolate fiscal consequences directly attributable to tariffs. Overall, OFM found that Washington State could face significant impacts due to tariffs on prices, growth, state revenue, and jobs. The report included some information specific to apparel and textile articles. The textiles and apparel mills industry is the fourth leading importer by monetary value in Washington State. In 2024, the textile and apparel mills industry 1.3 million dollars of goods. The textile and apparel mills industry in Washington State is anticipated to experience some gain in output sales, job growth, and wages between 2025 and 2029, suggesting a potential shift toward domestic production in response to higher import costs. However, "these increases are not enough to offset losses in heavily trade-exposed sectors." OFM stated that clothing is price sensitive (most elastic). Moreover, since "a large portion of U.S. clothing and footwear is imported, […] tariffs will directly raise the cost of those goods. Retailers will likely pass these additional costs onto consumers, resulting in steady price growth across" clothing and footwear items. OFM stated the increased cost of clothing and footwear will disproportionately impact families with low and middle incomes. OFM predicts clothing prices may increase 7.4% from 2025 to 2026.

31. **(OFM) Washington State Office of Financial Management. Multiple Agency Fiscal Note Summary: SHB 1420 (Textile producers). 2025.**
The Multiple Agency Fiscal Note Summary for SHB 1420 (Textile producers) includes information from the Washington State Office of State Treasurer; Department of Ecology; Environmental and Land Use Hearings Office; and local governments.

32. **Ecology Washington State Department of. 2020-2021 Washington Statewide Waste Characterization Study.2021.**
In 2020-2021, Washington State Department of Ecology (Ecology) conducted a statewide study of disposed waste in Washington State. Ecology estimated that textiles accounted for 4% (about 188,132 tons) of overall statewide disposed waste in Washington State.

33. **Legislature Washington State. RCW 70A.240.030: Recyling development center--Creation--Purpose and Duties--Report to the legislature and governor--Interagency agreement--Rules. 2019.**
RCW 70A.240.030 pertains to the creation of the Washington State Department of Ecology's Recycling Development Center.

34. **Recycling Reform Act. 2025; Available at: https://ecology.wa.gov/waste-toxics/reducing-recycling-waste/our-recycling-programs/recycling-reform-act. Accessed 10/15/2025.**
This Washington State Department of Ecology (Ecology) webpage summarizes the Recycling Reform Act. The Recycling Reform Act was passed into law in 2025 and creates an extended producer responsiblity (EPR) program for packaging and paper products as well as a standardized lists of recylable materials in Washington State.

35. **Chapter 173-337 WAC: Safer Products Restrictions and Reporting (Cycle 1.5: PFAS). 2025; Available at: https://ecology.wa.gov/regulations-permits/laws-rules-rulemaking/rulemaking/wac-173-337-nov2023. Accessed 10/17/2025.**
This Washington State Department of Ecology webpage provides an overview of intended rulemaking related to Chapter 173-337 WAC: Safer Products Restrictions and Reporting.

36. **EU Textile Extended Producer Responsiblity. 2025; Available at: https://h2compliance.com/eu-textile-epr-legislation-member-states-update/#Current_Implementation_Status. Accessed.**
H2 Compliance is a private consulting group that helps businesses navigate regulations, promote circular economy principles, and acheive sustainable operations. This webpage provides information about the current implementation status of EPR programs for textiles in the EU.

37. **Circular Economy Action Plan. 2025; Available at: https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en. Accessed 8/22/2025.**
This European Commission webpage provides an overview of the Circular Economy Action Plan adopted by the European Commission in March 2020.

38. **Commission European. EU Strategy for Sustainable and Circular Textiles. In: Commission to the European Parliament tC, the European Economic and Social Committee and the Committee of the Regions, ed2022.**
This document outlines the EU Strategy for Sustainable and Circular Textiles.

39. **Commission welcomes provisional agreement to enhance the circularity of textiles and reduce food waste [press release]. 2025.**
This press release announces that, on February 16, 2025, the EU reached a preliminary agreement on a proposed amendment to the Waste Framework Directive, requiring each EU member state to set up its own EPR for textile and footwear products. The press release also provided background information on the proposed amendment.

40. **Ecodesign for Sustainable Products Regulation. 2025; Available at: https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/ecodesign-sustainable-products-regulation_en. Accessed 8/22/2025.**
This European Commission webpage provides information about the Ecodesign for Sustainable Products Regulation which was implemented in 2024.

41. **Constitution Annotated: Analysis and Interpretation of the U.S. Constitution, ArtI.S8.C3.7.1 Overview of Dormant Commerce Clause. No date; Available at: https://constitution.congress.gov/browse/essay/artI-S8-C3-7-1/ALDE_00013307/. Accessed 10/9/2025.**
This U.S. Congress webpage provides summaries of the articles of the U.S. Constitution and includes summaries of related U.S. case law.

42. **Summary of the Pollution Prevention Act. 2025; Available at: https://www.epa.gov/laws-regulations/summary-pollution-prevention-act. Accessed 8/22/2025.**
This U.S. Environmental Protection Agency (EPA) webpage provides a summary of the 1990 Pollution Prevention Act.

43. **A bill to establish a regional trade, investment, and people-to-people partnership of countries in the Western Hemisphere to stimulate growth and integration through viable long-term private sector development, and for other purposes (Americas Act). (R-LA) SBC, trans. 118th Congress (2023-2024) ed2024.**
In March 2024, Senator Cassidy (R-LA) introduced S. 3878, A bill to establish a regional trade, investment, and people-to-people partnership of countries in the Western Hemisphere to stimulate growth and integration through viable long-term private sector development, and for other purposes (Americas Act). Chapter 3 of the Americas Act related to textile and apparel.

44. **Slow Fashion Caucus. no date; Available at: https://pingree.house.gov/slowfashioncaucus/. Accessed 10/2/2025.**
Representative Pingree's (D-ME) website provides an overview of the Congressional Slow Fashion Caucus, including information about the creation of the Caucus and Caucus principles.

45. **Voluntary Sustainable Apparel Labeling Act, H.R.1239(2025).**
In February 2025, U.S. Representative Casten (D-IL) introduced H.R. 1239, to direct U.S. EPA to establish a voluntary sustainable apparel labeling program. The Act did not pass into law.

46. **Representatives Espaillat and Rouzer Announce Textile Caucus for the 119th Congress [press release]. 2025.**
This press release, from the office of Representative Espaillat, discusses the creation of the Textile Caucus for the 119th Congress.

47. **Kamlager-Dove, Malliotakis Launch Recommerce Caucus to Power America's Secondhand Economy [press release]. 2025.**
This press release announces the creation of the bi-partisan Recommerce Caucus focused on expanding the economy to grow and sell pre-owned, refurbished, and secondhand goods.

48. **Chappell Bill. This rule made many online purchases dirt cheap for U.S. customers. Now it's ending. *NPR.* 8/28/2025, 2025.**
This news article provides a summary and overview of the executive order related to the "de minimus loophole" for imports into the U.S.

49. **Textile Stewardship. 2025; Available at: https://calrecycle.ca.gov/epr/textiles/#:~:text=California's%20groundbreaking%20Responsible%20Textile%20Recovery,repaired%2C%20reused%2C%20and%20recycled. Accessed 8/15/2025.**
This California Department of Resources Recycling and Recovery (CalRecycle) webpage provides background and implementation information about California's Responsible Textile Recovery Act of 2024.

50. **Accelerating Circularity Inc. Rags to Revenue: Unlocking post-consumer textile recycling in the U.S.2025.**
This white paper from Accelerating Circularity identified key barriers to scaling post-consumer textile-to-textile recycling in the U.S. and provided recommendations to overcome these barriers and strengthen economic viability. The three barriers identified include: usable recycling feedstock is lost at every step of the value chain (e.g., fragmented infrastructure, focus on reuse, low consumer participation, collected material cannot be aggregated to meet input specifications of textile recyclers); 2) post-consumer textile-to-textile recycling is expensive and largely unprofitable (e.g., manual sorting, costly preprocessing, capital-intensive recycling technologies operating below economic scale); and 3) demand for recycled fiber is low (e.g., price premiums, uncertain quality, limited traceability, lack of incentives or required adoption). Recommendations focus on increasing the feedstock supply, improving profitability, and boosting demand. Post-consumer textile feedstock is "significantly more variable, contains a range of potential contaminants, and is logistically more challenging to collect and sort compared to post-industrial output, which tends to be cleaner and more uniform." The two broad categoreis of textile recycling include: 1) downcycling, in which material is used for a different purpose or product than originally intended, and textile-to-textile recycling, where textile material is recycled into new yarns and textiles. Existing recycling infrastructure more effectively supports downcycling, whereas textile-to-textile recyling is less common. Most post-consumer used textiles are being sent to landfills (22 times the volume that is downcycled) rather than being diverted for reuse or recycling. Sorting for Circularity USA found that 56% of post-consumer textiles in the waste stream are suitable for textile-to-textile recycling. However, the cost to collect, sort, and de-trim post-consumer textiles is more than what based are sold to recyclers for. Among its recommendations, the report suggested implementing eco-modulated EPR fees in which producers pay more for hard to recycle products and less for circular-ready designs.

51. **(RRS) Resource Recycling Systems, Good Fashion for. Sorting for Circularity USA: A Commercial Assessment of Fibre to Fibre Recycling in the U.S. May 2024 2024.**
The Sorting for Circularity USA project was initiated in January 2023 by Fashion for Good and Resource Recycling Systems (RRS), facilitated by brand partners, adidas, Inditex, Levi Strauss & Co., and Target, as well as Eastman, H&M and Nordstrom, as external partners. The study aimed to assess the potential for fibre-to-fibre recycling in the U.S. Study authors evaluated consumer behavior specific to textile disposal and analyzed post-consumer textile waste to determine its suitability for recycling. For example, 46% of survey respondents throw underwear and socks in the trash and another 30% usually put ripped, torn, and stained items in the trash. Reasons given for disposal rather than diversion included poor condition or quality (37.5%), ease (13.2%), convenience (12.0%), lack of confidence about what is accepted (10.1%), etc. Evidence suggests that "education capaigns about diversion opportunities for low-quality and poor-condition items for recycling need to be clear and widespread." The report addresses textile collection, textile recycling, growth opportunities for the U.S. textile recycling industry, as well as recommendations.

52. **Beautiful Keep America. Americans Want to Recycle but Worry About Getting It Right. 2024.**

This Keep America Beautiful webpage cites evidence from a survey conducted by The Harris Poll. The survey was conducted online within the U.S. by The Harris Poll on behalf of Keep America Beautiful from October 3-7, 2024, among 2,075 adults aged 18 years and older. The sample data is reported to be accurate to within ±2.5 percentage points using a 95% confidence level. Key findings included that a strong majority of Americans reported recycling as important to them, with 80% believing individual efforts in recycling can make a difference in the environment. Of Survey respondents: 61% feel guilty when their trash includes items they could have recycled; 41% admit tossing recyclables into the trash to avoid getting it wrong; and 51% report regular access to recycling in public spaces. Motivation for recycling included: a desire to reduce the amount of trash going into landfills (61%), reduce carbon footprint (59%), contribute positively to society (48%), and ensure a better future for their children or future generations (46%).

53. **Blanchard O. . 2024 WM Recycling Report: Opportunities to Improve Recycling with Education, Access and Investment. The Futurum Group. ;2024.**
The 2024 WM Recycling Report investigated recycling behaviors and perceptions among U.S. consumers and business decision makers to better understand gaps and potentially strengthen the U.S. recycling system. Authors state, “there are gaps in the nation’s system to be addressed – including confusion about what is recyclable, limited access to recycling in certain areas, and a lack of clarity about what happens to materials after they’re placed in recycling bins.” WM commissioned the Futurum Group to conduct 2 online surveys of 1,045 consumers (518 people older than 18 years) and businesses (527 employees from U.S. companies) in July 2024 regarding recycling behaviors and perceptions. Employees included recycling program service or contract decision makers within the company, employees responsible for managing recycling programs, and general staff. Survey results indicate that many Americans are eager to recycle. The report identified 4 primary insights. First, it found “many Americas want to recycle more than they already do, but some question whether their materials are being recycled at all”. Nearly half (44%) of respondents reported looking for ways to expand their recycling practices. Among those who reported not recycling, 50% of those aged 18-24 years said they don’t recycle because they don’t believe materials are actually recycled (compared to 18% of respondents overall). Second, authors stated that findings suggest “Americans are more inclined to recycle when they have greater awareness.” Nearly 1 in 2 Americans report confusion about what can and can’t’ be recycled. However, “more than 3 in 5 (64%) Americans say that knowing more about what to recycle, as well as how, where, and what not to recycle, would increase their recycling involvement.” Third, “where consumers live can have an outsized impact on their recycling habits” as residents of rural areas face greater accessibility and convenience issues. Residents in rural areas are least likely to recycle: 55% of rural respondents reported recycling compared to 70% of suburban and 68% of urban respondents who reported actively recycling. Challenges experienced by rural residence include inconvenience: 50% reported having to drive to a different location compared to 33% of urban and 39% of suburban residents. Nearly 1 in 3 respondents living in rural areas (29%) report recycling services are not offered where they live, and 31% described local recycling programs as “somewhat or extremely lacking” compared to 18% of Americans overall. The survey also found that “76% of Americans across geographies indicate that they would increase their recycling habits if additional services were made available in their area, and 88% confirm that their commitment to recycling would not be negatively impacted by an increase in the cost of recycling.” Fourth, respondents indicated that creating

products with recycled content can differentiate brands and may potentially influence consumer purchasing behaviors.

54. **Poll: If Americans Are Expected to Recycle, It Needs to Be Made Easy [press release]. GlobeNeswire by notified, 10/10/2018 2018.**
On behalf of The Institute of Scrap Recycling Industries (ISRI), The Harris Poll conducted a survey of 2,003 Americans from September 17-19, 2018. The online survey was not based on a probability sample. Therefore, an estimate of theoretical sampling error could not be calculated. The poll showed that 66% of Americans agreed that "if a product is not easy/convenient for me to recycle, I probably would not recycle it." Then president of ISRI, Robin Wiener explained that the easier it is for people to understand whether a product is recyclable, the more likely it will be recycled. Most (81%) of respondents stated they would like a "Recycling Guide" label on products detailing the parts and percentage of the product that could be recycled. Additionally, 86% of respondents agreed that recycling collection sites needed to be more readily accessible to consumers.

55. **Xiao J. J. , Rafiee P. , Xia F. , et al. Consumer Sustainability: Is Knowledge Linked to Behavior in Recycling? *Sustainability.* 2025;17(1498).**
Xiao et al. examined factors associated with recycling behavior with an emphasis on the role of recycling knowledge. An extended theory of planned behavior served as the conceptual framework for the study. According to the theory of planned behavior (TPB), behavior is predicted on behavioral intention which is predicted by 3 factors: attitude toward behavior, subjective norm, and perceived control. Authors assumed that these factors directly predict self-reported behavior, and they incorporated 3 additional predictors: ascription of responsibility to others, personal motivation, and recycling knowledge. Authors used self-reported recycling data from a nationwide online survey of U.S. consumers conducted between January and March 2024 (N = 1343; final sample with complete data: n = 1248) to study recycling behaviors. The sample was predominantly female (57.48%); most respondents identified as White (80.15%); the average age was 52.79 years (SD 17.9); and 80% of respondents reported engaging in recycling activities. Two recycling knowledge variables were used: a subjective and an objective knowledge measure. The subjective question asked participants, "on a scale of 1-7 [1 low and 7 high], how would you assess your recycling knowledge?" A set of 9 true / false objective questions (1 = correct, 0 = incorrect) were summed for an objective recycling knowledge score. The main effects analysis indicated that subjective knowledge ($ß = 0.499$, $p < 0.001$) has a substantially stronger association with recycling behavior compared with objective knowledge ($ß = 0.099$, $p = 0.041$). They found that both objective and subjective recycling knowledge measures were positively associated with recycling behaviors. Behavioral skill (i.e., I can recycle easily; I have plenty of opportunities to recycle; I have been provided satisfactory resources to recycle properly; I know which materials/products are recyclable; I know when and where I can recycle materials/products; and I am responsible for recycling properly [moved from ascription of responsibility]) was positively associated with recycling behavior. Ascription to others' responsibility (i.e., government should be responsible for recycling properly and producers should be responsible for recycling properly) was negatively associated with recycling behavior. Authors suggested the interaction between attitude and subjective knowledge indicated that higher levels of perceived knowledge can reduce the impact of attitude on recycling behavior. Authors stated, "the results underscore the critical importance of both practical skills and

subjective knowledge in promoting recycling behavior." Additionally, "[t]he significant moderation effect suggests that enhancing [people's] perceived knowledge can mitigate the effects of attitudes, implying the limitations of recycling knowledge in promoting recycling behavior." Authors noted that 3 "factors (attitude, social motivation, and personal motivation) show links to recycling behavior, but the links are not statistically significant, which is inconsistent with previous research." Authors identified limitations including the cross-sectional nature of the data, reliance on self-reported behavior, etc.

56. **(LASAN) LA Sanitation & Environment, (CPSC) California Product Stewardship Council. City of Los Angeles Textile Recovery Project Phase 2 Final Report.**
Phase 2 of the Los Angeles, CA, pilot project to create a circular and streamlined model for textiles. It established a LA Textile Hub (database and map), tested different Near-Infrared Spectroscopy sorting devices currently on the market for fiber identification, and diverted discarded textiles into final products for the City of LA. The pilot worked with 3 recyclers and 4 upcyclers, held 7 fiber sorting events, sorted 1000+ lbs of material, and processed and made 1000+ lbs of material into new products.

57. **Rovira J., Souza, M. C. O., Nadal, M., Domingo, J. L. Human health risks from textile chemicals: a critical review of recent evidence (2019-2025).** ***J Environ Sci Health A Tox Hazard Subst Environ Eng.*** **2025;60(2):79–91.**
Rovira et al. synthesized research from 2019-2025 on hazardous substances in textiles and impacts on human health. Previous research shows the textile industry "relies substantially on synthetic chemicals, many carrying significant environmental and health risks." For example, synthetic fabrics frequently include chemical additives (i.e., dyes, flame retardants, softeners, and toxic metals). Textile manufacturing leads to the discharge of untreated wastewater containing toxic dyes, carcinogenic aromatic amines (AAs) and toxic metals such as chromium, lead, and antimony. Textile manufacturing poses risks to health through occupational exposure and chemical transfer to consumers. Workers may experience increased risk from prolonged exposure of chemicals. Consumers experience increased risk through dermal contact and inhalation of microfibers. Certain populations, particularly children and infants "have heightened susceptibility due to immature detoxification pathways and extended skin contact duration with garments." The researchers of this review focused on chemicals likely present in clothing "including flame retardants, trace elements, AAs, quinoline derivatives, bisphenols (BPs), benzothiazoles/benzotriazoles, phthalates, formaldehyde, and metal nanoparticles (NPs), as dermal exposure to them is non-negligible and could pose unacceptable cancer risks under certain conditions." The researchers outlined their search strategy and provided reference lists of articles included in the review. The review focused on phthalates, per- and polyfluoroalkyl compounds, metals, dyes, bisphenols, other chemicals, and microfibers and nanoparticles. The findings show "phthalate exposure via infant clothing contributes 58–73% of the total intake, and PFAS in school uniforms expose children to 1.03ng/kg bw/day." The research shows elevated risks from phthalates in infant clothing, PFAS in water-repellent fabrics, and carcinogenic aromatic amines (AAs) from azo dyes. Pthalates were detected in 92% of textile samples across studies with median concentrations that were significantly higher than metals but comparable to PFAS. The authors stated chronic exposure to chemical mixtures in textiles is not understood well. The review highlights regional inequities in regulatory enforcement. Regulatory frameworks are also inconsistent. For example, there are different regulations across various

chemicals in the EU, US, Brazil, Span, China, India, and Bangladesh. Global enforcement is challenging, particularly among countries with low-income with limited compliance monitoring. In general, "lower-income regions absorb higher chemical risks." The researchers also share recycled textiles retain 87% of original additives like DEHP, which show gaps in circular economy safeguards. Further, recycled textiles contain 1.8 times higher BPA levels than conventional items. In addition, clothing labeled "sustainable" is not guaranteed to be considered safe, as research found higher formaldehyde in eco-friendly garments. The authors cautioned against single-chemical risk assessments. The authors call for global regulations, advanced biomonitoring, and sustainable alternatives such as enzymatic dyes and biodegradable finishes. More specifically, they call for tracking textile-specific biomarkers, particularly for mixtures, predictive toxicological models, and balancing innovation with precaution in regulatory policies. The authors also stated public awareness, stricter enforcement, and interdisciplinary collaboration are necessary to mitigating risk and developing safe and sustainable solutions.

58. **Ecology Washington State Department of. Washington Consumer Packaging and Paper Study: Recycling Rate Assessment and Recommendations.2023.**
Engrossed Substitute Senate Bill 5693 (ESSB 5693) directed Washington State Department of Ecology to contract a study related to consumer packaging and paper products. This report details the findings of that specific study. In addition to information about consumer packaging and paper products, the report also provides a definition and explanation of eco-modulation.

59. **Department Washington State Employment Security. Establishment Size By Number of Employees 2024. 2024.**
Washington State Employment Security Department publishes annual establishment size data. These data provide a count of establishments and their size class based on their number of employees, for each Washington industry and for each county. First quarter data from the Quarterly Census of Employment and Wages (QCEW), Enhanced Quarterly Unemployment Insurance are used to build the establishment size dataset.

60. **The Antitrust Laws. 2025; Available at: https://www.ftc.gov/advice-guidance/competition-guidance/guide-antitrust-laws/antitrust-laws. Accessed 10/21/2025.**
This U.S. Federal Trade Commission webpage provides an overview of the U.S. antitrust laws, including the Sherman Act, the Federal Trade Commission Act, and the Clayton Act. This set of regulations outline unlawful mergers and business practices.

61. **Wagner M. M., Heinzel T. . Human Perceptions of Recycled Textiles and Circular Fashion: A Systematic Literature Review. *Sustainability.* 2020;12(599).**
In this systematic review, Wagner and Heinzel explores recycled textiles and circular fashion as perceived by humans. Their qualitative analysis of 47 articles that met inclusion criteria found that a significant portion of consumers from various countries (4 studies in the U.S. and 5 studies in the U.K.) have a basic understanding of sustainable products but have different attitudes towards sustainable purchase, use, consumption, and post-purchase behavior. Generally, choices between virgin and recycled textile products depend "on the perceived benefits or disadvantages of product attributes." Sixteen articles discussed awareness of sustainability and perceived added value for consumers and the industry. Results indicate awareness can positively influence sustainabile fashion behavior and consumption. However, studies suggested more awareness-

raising initiatives for consumers were needed. For example, a U.K. study indicated that compared to other successful material recycling options (e.g., glass, plastic, paper), there is a research gap on consumer disposal of fashion. The study also found "limited awareness of fibre recycling and its sustainable contribution." Meanwhile, a study in Korea found that "a donation was perceived as good, easy, and exciting; purchasing up-cycled clothing was perceived as "a good thing" and adding value, including quality." Another study found that while many consumers preferred clothing reuse to disposal, convenience was identified as of utmost importance. Some studies indicated that "environmental attitudes toward general waste recycling behavior...could positively influence clothing disposal behavior." However, this was not consistent across studies. Additional findings specific to designers and brands were also presented.

62. **About. 2025; Available at: https://www.goodwill.org/about/. Accessed 10/10/2025.**
This webpage provides an overview of Goodwill Industries International and its network of community-based, autonomous organizations. Information includes mission, history, structure, impact, partners, careers, and global reach.

63. **Center Pew Research. Politics of Climate: Everyday environmentalism. 10/4/2016 2016.**
This Pew Research Center politics of climate resource presents data collected through a survey conducted May 10 through June 6, 2016. Results indicated most Americans had home recycling (63%) for plastic or paper goods.

64. **Center Pew Research. Why Some Americans Do Not See Urgency on Climate Change.2023.**
Pew Research Center conducted this study to understand the perspectives of Americans who put lower priority on acting to address climate change and see human activity as playing a limited role in the Earth warming. The Center completed in-depth interviews with 32 U.S. adults. Sago, a market research firm, conducted interviews online between May 15-26, 2023. Interviews were conducted with adults living in the Midwest, Mountain West, Southwest, South, and Coastal Florida. Participants generally supported individual action in areas such as recycling and limiting waste. Although participants "all placed lower importance on taking action to address climate change, they shared an openness for some types of government action on the environment, particularly at the local level." Multiple interviewees indicated that local government should help community members live in ways that support the environment noting some combination of reducing, reusing, and recycling as ways to take personal responsibility.

65. **Group Cascadia Consulting. Textiles Research Report: King County Solid Waste Division--EcoConsumer Public Outreach Program.2024.**
King County Solid Waste Division contracted with Cascadia Consulting Group to conduct research related to textile waste in King County. Cascadia Consulting Group conducted expert interviews (n=6) and a review of published resources (n=14) to: 1) Understand the current state of King County's regional textile recycling system; 2) Consider possible new outreach, messaging, or creative engagement regarding the ThreadCycle program; and 3) Consider possible future initiatives or recommendations to reduce textile waste in King County. Cascadia

Consulting Group provided 5 recommendations for King County to build a more circular textile system.

66. **McCauley Evan, Jestratijevic Iva. Exploring the Business Case for Textile-to-Textile Recycling Using Post-Consumer Waste in the US: Challenges and Opportunities. *Sustainability.* 2023;15(2).**
McCauley and Jestratijevic explored ways to use post-consumer textile waste for textile-to-textile recycling. The researchers sought to explore the dynamics between post-consumer waste traders and recyclers; investigate challenges to faster scaling of textile waste feedstocks and the processing of this waste into new fibers; and provide theoretical and practical foundations for effective interventions in this area. The researchers conducted semi-structured interviews with eleven senior representatives from textile sorting and fiber recycling organizations with operations in the U.S. Study results indicated the main barriers to this work are related to commercial interest and financial incentives. For example, there is no financial incentive to take actions needed to reduce environmental impact. The authors stated, "[...] it is still unclear how infrastructure development in the US will be financed or conducted to address the identified barriers. Meanwhile, accumulation of textile waste in US landfills shows no signs of slowing down."

67. **Juanga-Labayen Jeanger P., Labayen Ildefonso V., Yuan Qiuyan. A Review on Textile Recycling Practices and Challenges. *Textiles.* 2022;2(1):174–188.**
Juanga-Labayen, Labayen, and Qiuyan published this review on textile recycling practices and challenges. The review discusses the current context of the clothing and textile industry and environmental impacts. The review also discusses reuse and recycling technologies such as anaerobic digestion, fermentation, composting, fiber regeneration, and thermal recovery to manage textile waste. Lastly, the paper also discusses application of extended producer responsibility (EPR) to clothing and textiles.

68. **(LASAN) LA Sanitation & Environment, (CPSC) California Product Stewardship Council. City of Los Angeles Textile Recovery Project.**
The Goldhirsh Foundation awarded LA Sanitation and Environment (LASAN) $25,000 in grant funding from the LA2050 Grants Challenge to spearhead the LA Circular Textiles Initiative. The pilot (2019-2021) focused on the feasibility of collecting and repurposing post-production textile scraps. Data collected from the study provided the sources of commercial textile waste, the fiber nature and content, and current practices to manage unwanted textiles (e.g., landfilling blended fabrics). The study was not inclusive of all commercial textile generators and did not include any residential textiles. Mechanical recycling was not included due to budget constraints. Additionally, a pilot project funded by LA County Public Works included hotels, hospitals, and detention centers, and data collected were also used in the general analyses. During Phase 1 of this work, authors reported "the largest externalized costs are storage and transportation of textile waste, which are typically covered expenditures in an extended producer responsibility (EPR) or a stewardship program." A Textile Recovery Working Group is recommended to "engage multiple industries contributing to the textile waste stream and for co-funding to avoid detrimental risks and costs for small businesses, local government, and disadvantaged communities."

69.	**Chavez-Linares P., Hoppe S., Chevalot I. Recycling and Degradation Pathways of Synthetic Textile Fibers such as Polyamide and Elastane. *Glob Chall.* 2025;9(4):2400163.**
Chavez-Linares, Hoppe, and Chevalot completed this review of literature about synthetic textile production. The authors compiled evidence about the recycling processes available, and focused their review on nylon and elastane.

70.	**ASTM WK93684 New Guide for Facilitating Circular Processing of Textile Waste. 2025; Available at: https://www.astm.org/membership-participation/technical-committees/workitems/workitem-wk93684. Accessed 10/14/2025.**
This ASTM webpage announces the scope of a new guide in development focused on facilitating circular processing of textile waste. The work item was initiated on 1/30/2025. The guide "will provide links to other standards (such as practices, specifications, and test methods) that will enable retailers, brands, recyclers, and others interested in circular textile business models to increase their engagement and ability to process textiles for circularity."

71.	**Textile Fiber Rule. Available at: https://www.ftc.gov/legal-library/browse/rules/textile-fiber-rule. Accessed 10/13/2025.**
This U.S. Federal Trade Commission webpage provides a summary of and information regarding Federal Register Notices, press releases, and advisory opinions relate to the Textile Fiber Rule (16 CFR Part 303).

72.	**Cannon Clare. Examining Rural Environmental Injustice: An Analysis of Ruralness, Class, Race, and Gender on the Presence of Landfills Across the United States. *Journal of Rural and Community Development.* 2020;15(1):89–114.**
Cannon provides an analysis of landfills and their impacts on environmental health and justice. The analysis explores the relationships between the presence of 93% of all landfills other than hazardous construction and demolotion (C&D), industrial, and municipal and social inequality. Previously published literature shows hazardous waste landfills are co-located in rural communities, particularly in poor communities of color. The researcher of this study used secondary data of non-hazardous landfills in the 48 contiguous U.S. Study results show these types of landfills are more likely to occur in counties with higher percentages of poverty and people of color, and that more urban areas have a ten times greater likelihood of hosting a hazardous waste landfill compared to the most rural areas. The results also showed that counties with a greater percentage of single female-headed households in poverty have greater odds that a landfill will be present.

73.	**Cannon Clare E. B. Advancing sustainable transitions: A spatial analysis of socio-environmental dynamics of landfills across the United States. *Elem Sci Anth.* 2024;12(1).**
Cannon analyzed waste management systems through an environmental justice lens by examining placement of both nonhazardous and hazardous waste landfills. The researcher used a unique dataset of all landfills (construction and demolition, municipal, industrial, and hazardous). The data was evaluated using spatial error models. Study results shows that communities of color, female-householder families, and disasters are associated with both nonhazardous and hazardous waste landfills. The author also stated, "[l]andfills are a kind of environmental hazard, linked to harms, such as the production of greenhouse gases and the

accumulation of toxins in natural and human systems. Landfills contribute to climate change through emissions."

74. **Rights U.S. Commission on Civil. Chapter 2: What is Environmental Justice Not in My Backyard: Executive Order 12,898 andTitle VI as Tools for Achieving EnvironmentalJustice. 2003.**
The United States Commission on Civil Rights published this report, which examines how well the Environmental Protection Agency, the U.S. Department of the Interior, the U.S. Department of Housing and Urban Development, and the U.S. Department of Transportation have implemented Executive Order 12,898 and Title VI. Chapter 2 of the report focuses on Environmental Justice. Specifically, the authors discuss the ways racism is connected to decision-making about where to place polluting facilities (i.e., landfills and toxic dumps). A large body of evidence shows that communities with low income and marginalized communities are disproportionately exposed to environmental harms and risks, including in relation to hazardous and toxic facilities.

75. **DeVoy J. E., Congiusta E., Lundberg D. J., et al. Post-Consumer textile waste and disposal: Differences by socioeconomic, demographic, and retail factors. *Waste Manag.* 2021;136:303–309.**
Devoy et al. assessed how post-consumer textile waste generation and recycling behaviors differ by area-level demographic, socioeconomic, and retail characteristics, and whether these same factors were associated with having more landfills per capita in a county. The researchers used publicly available data from 67 counties in the state of Florida from 2014 to 2019, as well as publicly available data on landfills. Study results indicated textile waste is an environmental justice issue where people with more income contribute higher amounts of post-consumer textile wast to landfills, and that landfills are more commonly located in communities with lower socioeconomic status. More specifically, the study found, "people living in areas with higher incomes, that are more racially segregated, and that have more clothing stores generate significantly more textile waste than people in other areas. In contrast, there were more landfills per capita in areas with lower incomes and fewer landfills per capita in areas that were more racially segregated. Textile recycling occurred at relatively uniform rates across counties." The authors also provided additional background information and context on post-consumer textile waste in the U.S.

76. **Woods D. From Closet to Catastrophe: The Climate-Driven Spread of Textile Contaminants. *The Yale Global Health Review.* 2025. https://yaleglobalhealthreview.com/2025/05/19/from-closet-to-catastrophe-the-climate-driven-spread-of-textile-contaminants/.**
Woods published this article on contaminants in textiles in the Yale Global Health Review. The article provides a summary of research on chemicals used in textile production and the impacts on health and the environment. The author describes a need for proactive, climate-responsive policy that anticipates changes in pollutants over time.

77. **Sustainable fashion to take centre stage on Zero Waste Day. 2025; Available at: https://www.unep.org/technical-highlight/sustainable-fashion-take-centre-stage-zero-waste-day. Accessed 11/4/2025.**

This United Nations Environment Programme (UNEP) webpage highlights textile industry impacts, sustainable fashion, and Zero Waste Day 2025.

78. **Sandin Gustav, Peters Greg M. Environmental impact of textile reuse and recycling – A review. *Journal of Cleaner Production.* 2018;184:353–365.**
Sandin and Peters reviewed studies of of the environmental impact of textile reuse and recycling. The authors provide a summary of the research and highlight areas for additional research. The research included review of 41 international studies where 21 were peer-reviewed and 20 were other types of publications. Studies older than 2003 were excluded. Results show strong support that textile reuse and recycling in general reduce environmental impact compared to incineration and landfilling, and that reuse is more beneficial than recycling.

79. **Pirc U., Vidmar M., Mozer A., et al. Emissions of microplastic fibers from microfiber fleece during domestic washing. *Environ Sci Pollut Res Int.* 2016;23(21):22206–22211.**
Pirc, Vidmar, Mozer, and Krzan examined the emissions of microfibers from domestic washing of a new microfiber polyester fleece textile. The study results showed emission initially decreased and then stabilized at approx. 0.0012 wt% and that using detergent and softener did not significantly change emission. The research also found that release of fibers during tumble drying was approx. 3.5 times higher than during washing.