

Post-consumer textile circularity in the Baltic countries

current status and recommendations
for the future

 Nordic Council
of Ministers



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Aknowledgements

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Executive Summary

Objectives

The fashion and textile industry uses a large amount of resources and has a heavy environmental impact compounded by the industry's continuing growth. The majority of new textiles placed on European markets end in mixed waste for landfill and/or incineration following the first user. To tackle this, by 2025 all EU member states will be obliged to separately collect used household textiles for reuse or recycling. Moreover, an EU Strategy for Textiles is foreseen that will aim to boost the EU market for sustainable and circular textiles, including the market for textile reuse, addressing fast fashion related challenges and new business models.

The separate collection and treatment of used textiles is in its infancy in the Baltic states. There is lack of documented data on current used textiles flows, the reuse and recycling sector practices, overall industry challenges and future possibilities. The Nordic countries, meanwhile, have been frontrunners in addressing the need for a more sustainable and circular textile systems. Since the Baltic region is part of the Nordic circular textile eco-system, there is a real need for alignment and collaboration.

This project had the following objectives and related outputs:

- To map new and used textile flows in the Baltic states (Chapter 4)
- To identify challenges and opportunities in textile collection, sorting, reuse and recycling (Chapter 5)
- To gather stakeholders for capacity building, knowledge sharing and insights for sector development (Chapter 7)
- To develop policy and sector development recommendations for preparation of the 2025 separate textile collection requirement and overall advancement of textile circularity in the Baltic region (Chapter 6, 8)
- To facilitate and strengthen knowledge exchange and collaboration between actors in Baltic and Nordic countries in the value chain of used textiles (Conferences and workshops)

Method

Mapping of textile flows was carried out via a combination of available data on the domestic production, imports and exports of clothing and household textiles, municipal waste data and other sources, and new information gathered through surveys and interviews of actors in the used textile value chain in Baltic countries. Findings from mapping studies were shared and verified through three international and eight national conferences, as well as meetings and workshops held across the three states as part of the project. These meetings were also utilised to discuss potential policy initiatives, enable knowledge transfer between Baltic and Nordic actors and to seed potential collaborations between actors across the value chain from the Baltic-Nordic regions.

Key findings and sector-related challenges and opportunities

Consumption of new and second-hand

There is a relatively strong culture around circular consumption practices of clothes in the Baltic countries. First, consumption levels of new textiles are significantly lower than in the Nordic countries (except Estonia). Just under **48,000 tonnes** of new textiles were consumed in the Baltic states in 2018. Consumption rates differed widely from 12.4 kg/capita in Estonia in 2018 to just 6.1 kg/capita and 7.0 kg/capita in Latvia and Lithuania respectively. However, consumption is growing rapidly in these two countries; growing by 25% in Latvia and 37% in Lithuania in a single year (2017 to 2018); representing a challenge as supportive ecosystems for textile circularity are under developed in the region.

All three Baltic states have a high consumption of **second-hand** textiles, ranging from 2.4 kg/capita in Estonia to 2.7 kg/capita in Lithuania. Second-hand textiles make up a significant share of total household consumption of textiles: 29% in Latvia and Lithuania and 16% in Estonia. Most second-hand textiles are imported from abroad with up to one quarter coming from the Nordic countries. There is some evidence that clothes are used longer before being discarded in Baltic countries, complemented by a strong tradition in handicraft, mending and repairing. This is positive for sustainability but can be a challenge to the economic viability of collection.

Separate collection of used textiles

The collection infrastructure in the Baltic countries is relatively underdeveloped with the partial exception of Estonia. Separate collection of textiles is non-viable especially in rural areas. Total separate collection of used textiles in the Baltic countries is estimated at just over **7,450 tonnes in 2018**. Collection rates range from 3.7 kg/capita in Estonia to just 0.8 kg/capita and 0.3 kg/capita in Lithuania and Latvia respectively. 30% of purchased new textiles in Estonia are collected separately when they are no longer wished for, comparable with Nordic collection rates. Collection rates are significantly lower in Lithuania and Latvia at 11% and 5% respectively. The remainder ends in mixed waste destined for landfill or incineration.

Separate collection is relatively evenly split between charitable organisations, commercial/private collectors and municipalities/contracted waste companies across the region as a whole. Collection is predominantly carried out via bring-banks placed in civic amenity centres and on streets, plus collection over the counter in charity shops and retailers. There is no door-to-door collection of used textiles in the Baltic states.

On the positive side, collection activities by existing actors are expanding and new actors are entering the market while consumers' awareness of textile circularity is growing. On the other hand, cooperation between different stakeholders on the market is relatively modest (e.g. charities, commercial collectors, municipalities, waste management companies) but there is a growing interest in finding partners and building collaboration for joint efforts across the sector. The biggest challenge to separate collection is the low and falling quality of locally collected textiles which

can't compete on quality and condition with imported used textiles.

Treatment of domestically collected textiles

Separate collection does not in itself guarantee recirculation. Collectors donate or sell as much as they can for reuse or recycling at home or abroad but no less than **42% of separately collected textiles are subsequently sent to landfills or incineration**. Waste companies working under contract to municipalities are largely responsible; 97% of textiles collected separately by waste companies are landfilled or incinerated. Commercial and charitable collectors on the other hand send only 15% of the textiles that they collect to landfills and incineration.

Waste companies claim that very few of the textiles they collect are reusable and that recycling markets for the non-reusable share are non-existent or difficult to access. Domestic recycling options are limited, particularly in Estonia and Latvia where just 600 kg of separately collected textiles by all actors were recycled in 2018. In Lithuania the figure was higher but still insignificant at 34 tonnes. Moreover, after-markets abroad for these fractions are not readily accessible. Hence, a high share of locally collected textiles is currently landfilled or incinerated.

The wholesale and sorting sector

The Baltic region is active in used clothing imports and wholesales by providing an important source of affordable clothing for the local markets and employing 2,000-4,000 workers. The Baltic States imported over **90,000 tonnes** of used textiles in 2018 for sorting/processing and all lie among Europe's top four importers of used textiles when measured in kg/capita. A quarter of imported used textiles come from Nordic countries. As such, the Baltic region is an important element in the circular economy of Nordic textiles.

Used textiles are imported by wholesalers for detailed sorting into over 100 reusable fractions for subsequent reuse either domestically or on global markets following re-export. Non-reusable fractions may be sent on to domestic or global recycling markets, or disposed of in the sorting country. Sorters in Lithuania report that 71% of their imports are reused on domestic or global markets compared to 53% reported by Estonian sorters.

The wholesale and professional sorting sector focuses on imports and lacks motivation and capacity to sort and further circulate domestically collected textiles. All sorting is done manually by highly trained sorting staff with a focus on reuse, since this is where the money lies. No sorting for fibre-to-fibre recycling markets currently takes place and there are as yet no automated sorting technologies available in the region.

Potential for recycling

Lack of recycling capacity is a challenge, in particular for waste companies collecting municipal textile waste but also for other actors in the used textile value chain. Moreover, waste companies are not motivated to invest in recycling technologies due to lack of consistency in quantity and quality of textile waste that they collect and limited access to potential markets for recycled materials.

However, the wholesale and sorting sector represents an opportunity for increasing

recycling capacity that can also have positive impacts on the whole used textile value chain in the Baltics. The high volumes of imported used textiles, high expertise in manual sorting for reuse and the relatively low labour costs compared to neighbours present positive conditions for establishment of fibre-to-fibre as well as high quality open loop recycling. Developing the region's sorting capacity for recycling markets will open up additional opportunities to become a serious player in the wider European circular textile eco-system.

There are also considerable opportunities for upcycling waste fabrics and redesigning used garments into new garments and other products. The Baltic region has a long history and culture in sewing and an increasing number of Baltic start-ups and companies are seeing opportunities for local redesign and upcycling activities. However, market and economic barriers exist to scale up these businesses and policy intervention is recommended to improve that.

A New Policy Framework

Of the Baltic states, so far only Estonia obligates municipalities to set up separate collection of textiles waste. In both Latvia and Lithuania, new national waste policies are due in the coming years which may adopt similar requirements. An alternative strategy is to place responsibility for separate collection, reuse and recycling on companies that place new clothing and textiles on the market (Extended Producer Responsibility).

Although Estonian municipalities are required to establish separate collection of textiles waste, the textiles that are collected by contracted waste companies are almost entirely landfilled or incinerated. This highlights that separate collection requirements on their own are not sufficient to ensure circularity in textiles.

With basis in the challenges and opportunities identified for textile circularity in the Baltic states the following **policy goals** are identified as being relevant to the region:

- **Increase the separate collection** of used textiles from households, public institutions and private institutions (e.g. hospitals, nursing homes, military, hotels, etc.)
- **Increase and promote reuse** by nurturing the culture of culture of second-hand, renewal, repair, sharing and other reuse practices
- **Minimise the quantity of separately collected textiles that are sent to landfill/incineration and increase recycling** by establishing a thriving recycling sector in collaboration with Nordic and international technology innovators, recyclers, brands and other relevant stakeholders.
- **Increase public awareness** and develop the sector's capacity in circular practices of design, consumption, collection and recycling and establish common working principles for the sector.
- **Increase collaboration** between industry stakeholders at a national level and develop cooperation at Baltic, Nordic and EU level for increased circularity of textiles.

A review of policy development in the Nordics countries and other leading European countries, has identified the following set of policy measures that can assist in meeting these policy goals. Further assessment is needed on the degree to which

such policy measures fit with existing policy frameworks.

Strategic and legislative measurements:

- Define a national strategy towards circular economy of textiles
- Setting national targets for collection, reuse and recycling
- Obligation for municipalities to secure separate collection of used garments and textiles, combined with minimum targets for reuse and recycling of the collected textiles
- Establish Extended Producer Responsibility (EPR) to garments and textiles

Economic instruments:

- Tax/VAT reductions for second-hand retail, and repair and upcycling activities
- Tax relief on labour for domestic collectors and sorters
- Higher landfill and incineration tax/charges/fees
- Economic incentives (tax reductions, etc.) for recycling companies to relocate in Baltics
- Financial support to the development of the innovative technology through R&D grants (collection/sorting/recycling)
- Financial support to the establishment of the required infrastructure and technology investments (collection/sorting/recycling)
- Government funding pool for start-up investments in new circular business models within textiles
- Promotion and targets for Green/Circular Public Procurement

Soft instruments:

- Communication/campaigns to inform citizens on how to dispose of used textiles, the benefits of reuse, repair and recycled content in products)
- Common working principles i.e. Codes of conduct (for collection, sorting, resell and wholesale sector)
- Building platforms for dialogue and collaboration across the sector
- Capacity building (training and education) to increase knowledge that ensures circular textiles production and handling skillset (design, production, repair, redesign, recycling)
- Voluntary agreements for large public organisations to take back their textiles

Recommendations for actors

In addition to a new policy framework, concerted effort will be needed by a wide range of actors in the Baltic region to achieve a circular textile economy. Some potential actions for each type of actor is identified below.

National authorities

- Set targets for collection, reuse and recycling and develop monitoring/evaluation systems
- Implement policy measures that can ensure that these targets are met
- Ensure a clear legal framework that supports collection, reuse and recycling
- Promote circular procurement via specific targets, public procurement guidelines and rules
- Ensure the economic viability of textiles collection, sorting and recycling for engaged actors
- Encourage and support businesses in circular solutions and innovative partnerships
- Provide financial support for automated sorting and recycling of non-reusable textiles

Local authorities

- Ensure separate collection, reuse and recycling opportunities in collaboration with different actors
- Provide clear guidance to citizens on textile collection, reuse and recycling opportunities
- Develop communication and awareness raising activities for citizens
- Encourage and support local businesses in circular solutions

Collectors and sorters

- Develop current sorting practices with focus on increased local reuse
- Increase collaboration between domestic collectors and sorters/wholesalers
- Develop sorting capacity for fibre-to-fibre recycling markets
- Investigate the integration of repair and renewal services within existing operations
- Develop strategic collaboration with recyclers and innovators
- Join forces with competitors to push innovation and build regional capacity
- Develop a universal code of practice to harmonise textile collection, sale and recycling

Second-hand sector

- Evaluate merchandise in terms of transparency and circularity
- Engage with consumers on sustainable consumption matters
- Create attractive retail environments to provide professional 2nd hand experiences
- Build collaboration with other industry stakeholders, including municipalities

Waste management/recycling sector

- Develop collection and recycling capacity of textile waste
- Create strategic partnerships with collectors, municipalities, recyclers and circular businesses

Producers/brands

- Implement eco-design principles in product design
- Implement targets and practices in order to uptake recycled fibres in products and collections
- Seek collaboration with collection, resell and recycling companies to circulate excess stock
- Nudge consumers on product choice, use, reuse and disposal matters
- Collaborate with local reuse, repair and upcycling communities for local textile eco-systems
- Avoid greenwashing in communication

Consumers

- Buy used or rent/lease instead of buying new
- Wash with care, mend and repair
- Pass on unwanted garments for reuse and recycling
- Demand transparency and adapt a critical lens in circular textile communication
- Give feedback to collectors, local municipalities, reuse organisations, brands and producers

Research and education

- Make circular economy of textiles a strategic area of interest for research
- Strengthen circular economy focus in the existing curricula and study projects
- Engage in international research consortiums for knowledge exchange and collaboration
- Proactively engage with local business, non-profit and start-up communities

Further study needed

Further studies are needed in moving forward with a Baltic circular textile eco-system development in the Baltic countries. Potential focus areas include: developing an in-depth understanding of key stakeholder needs to define priorities for sector development; an assessment of the need and feasibility for sorting and recycling technology development and implementation on national and regional levels; and in-depth study on how best to economically support the collection and sorting sectors, as the share of non-reusable textiles in collection increases. This could include reviewing the feasibility of Extended Producer Responsibility systems in the Baltic states.

There is also potential for further knowledge transfer from the Nordic countries to the Baltics. This could include knowledge transfer from circular textile systems such as Telaketju in Finland and the development of policy measures to support these.

Finally, there is a need for more research into how consumer values, environmental awareness and interest in philanthropy affects their decisions concerning the purchase, treatment and discarding of textiles.

1. Background and objectives

1.1 Background

The COP 15 Paris Agreement has identified an urgent imperative for global efforts to tackle climate change and environmental damage from major industrial activities. Textiles and clothing are a fundamental part of everyday life and the sector is an important part of the European manufacturing industry, playing a crucial role in the economy and social well-being in many regions of Europe. There are around 171,000 companies in the textile and clothing industry in the EU which provide employment to 1.7 million people¹. At the same time, the fashion and textile industries use a large amount of resources and have a heavy environmental impact compounded by continuing industrial growth². It is estimated that in the EU clothing, footwear and household textiles industries are the fourth highest pressure category in terms of use of primary raw materials and water (after food, housing and transport), as well as the second highest for land use and the fifth highest for greenhouse gas emissions³.

Current production and consumption of clothing is dominated by a “take, make, dispose” economic model which relies on large quantities of cheap, easily accessible materials and energy. The rise of fast fashion over the past two decades has further accelerated the throughput of products and with it, the demand on resources. One of the biggest challenges of the circular economy within fashion and textiles is the increasing volumes of post-consumer textiles that end up in global landfills or being incinerated⁴. Worldwide, 73% of material going into the clothing system is lost after final garment use, either sent to landfill or incinerated. A large part of these textiles is still usable, and a good proportion of those could be recycled into new products⁵. This presents a huge loss in material as well as economic value.

In 2017, the EU produced 7.4 kg of textiles per person per year while consuming nearly 26 kg per person⁶. However, these include all types of textiles including technical textiles and semi-manufactured products. Preliminary results from a mapping project being carried out for the EU’s Joint Research Council⁷ indicate an average consumption rate for clothing and household textiles of approximately 11 kg/capita across the EU. The majority of these textiles end in mixed waste for landfill and/or incineration following the first user. Of countries with available data, only Germany has a separate collection, reuse and recycling rates for clothing and household textiles that exceed 50%⁸.

The three Baltic states – Estonia, Latvia and Lithuania – have a long tradition and history in the textile and clothing industry: This includes cotton, wool, flax yarn and fabric production, as well as garment and textile product manufacturing. In the past,

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1. EEA, 2019.
 2. European Environment Agency (EEA) (2019).
 3. Ibid.
 4. Ellen MacArthur Foundation, (2017).
 5. Watson et al (2017b).
 6. ETC/WMGE (2019).
 7. The project is being carried out by Oeko Institut and PlanMiljø for the JRC and first reporting is expected in summer 2020.
 8. Watson et al (2018a). The above-mentioned JRC project will provide a wider overview of countries with collection data.

the region was the main supplier of textiles and clothing to the former Soviet Union. Decades later, despite the fact that the region has lost a great share of the industry to Asian competitors, the Baltic region still has a functioning textile industry, mainly consisting of SMEs. The industry is dominated by sewing companies that act as outsourced production facilities for EU and Nordic brands and to a limited extent also for local brands. For example, in Latvia there are around 2000 textile companies which employ around 12,660 people which cover lingerie manufacturing, sewing, weaving, technical textile manufacturing and artisan textile production⁹. In addition to manufacturing, the Baltic region also plays a role in a downstream value chain of European textiles and clothing. Eastern Europe (incl. the Baltic countries) is one of the main destinations for used textiles¹⁰ within the EU, and it has an especially strong link with Nordic countries and their used textile exportation to Baltic countries, which has recently been documented.¹¹ The Nordic region exports over 70,000 tonnes of used textiles a year, the majority of which is sent to Eastern Europe for sorting, where handling costs are lower and where there are markets for some of the textiles that cannot be sold for reuse in the Nordic markets. The majority of the processed textiles are then re-exported for reuse and recycling elsewhere. Estonia and Lithuania are among the top 5 destinations (together with Poland, Bulgaria and Germany) for Nordic used textile exports. Thus, the Baltic region plays an important role in the European and Nordic textile circularity.

In order to address the growing textile waste problem, in 2018 the EU amended the Waste Framework Directive (WFD)¹², which stipulates that by 2025 all EU member states are obligated to separately collect used household textiles from municipal waste. Additionally, the European Commission recently introduced a new Circular Economy Action Plan¹³ as one of the main blocks of the European Green Deal¹⁴. As part of the Plan, a comprehensive EU Strategy for Textiles will be proposed that aims to boost the EU market for sustainable and circular textiles, including the market for textile reuse, addressing fast fashion related challenges and new business models. The strategy will aim to boost the sorting, re-use and recycling of textiles, including through innovation, encouraging industrial applications and regulatory measures such as extended producer responsibility (EPR).

These ambitious plans will also have implications for the Baltic region. In light of the 2025 separate textile collection requirement, the three Baltic countries will be required to set up domestic collection systems for used textiles in parallel with treating the big volumes of imports, which will most likely grow as a result of the EU wide collection requirement.

There is a need for a more circular textile system that provides opportunities for reducing the demands on material resources and minimizing waste¹⁵. This transition requires changes throughout many economic and societal components. Products are needed that are designed for long life and for end-of-life recyclability, as well as products which are well-functioning and convenient in terms of clothing collection systems. Additionally, sorting procedures that can efficiently serve both the reuse

9. LIAA (2018), <http://www.liaa.gov.lv/en/trade/industry-profiles/textile-and-clothing-industry>

10. Watson, et al. (2016).

11. Watson et al (2016).

12. Directive (EU) 2018/851 amending Directive 2008/98/EC on Waste (the WFD).

13. Communication from the Commission to the European parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A new Circular Economy Action Plan, For a cleaner and more competitive Europe. Brussels, 11.3.2020 (COM(2020) 98 final).

14. Communication from the Commission to the European parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. The European Green Deal. Brussels, 11.12.2019 (COM(2019) 640 final).

15. EMF (2017).

and recycling markets, recycling technologies that can recycle textiles into high quality fabrics and other products, consumer readiness to buy used and recycled products, and brand commitment to participate in textile waste minimisation and uptake recycled fibres in new collections are required¹⁶. This needs to be supported by legislation in order to turn textile waste into valuable material that can compete with the price of virgin materials and substitute the use of virgin materials. Nordic countries have been frontrunners in addressing the need for a more sustainable and circular textile system. Making this happen requires cross-sectoral and cross-border collaboration.

1.2 Objectives

The separate collection and treatment of used textiles is in its infancy in the Baltic States. There is lack of documented data on the current flow of used textiles, the reuse and recycling sector practices, overall industry challenges and future possibilities. In addition, no projects or initiatives have taken place that have looked at the issue of used textile waste from a regional perspective. As Nordic countries have been frontrunners in addressing the need for a more sustainable and circular textile system, over the last many years, several initiatives and projects have been conducted that have strengthened the understanding of the region and expertise and capacity in circular textile solutions. Since the Baltic region is part of Nordic circular textile eco-system, there is a real need for alignment and collaboration.

The overall purpose of the project is to create a better understanding of the used household textiles and textile waste situation in the Baltic region, develop recommendations for sector advancement and to build a Nordic-Baltic connection for knowledge exchange, capacity building and collaboration for circular textile transition.

More specifically, the project has following objectives:

- To map new and used textile flows in Estonia, Latvia and Lithuania
- To identify challenges and opportunities in textile collection, sorting, reuse and recycling in Estonia, Latvia and Lithuania
- To develop policy and sector development recommendations for preparation of the 2025 separate textile collection requirement and overall advancement of textile circularity in the Baltic region
- To gather stakeholders for capacity building, knowledge sharing and insights for sector development
- To facilitate and strengthen knowledge exchange and collaboration between actors in Baltic and Nordic countries in the value chain of used textiles

The project is being carried out by a consortium led by the Stockholm Environment Institute Tallinn Centre (Estonia) and PlanMiljø (Denmark), Textale (Lithuania) and Green Liberty (Latvia) during the period of October 2018 to April 2020. The study was commissioned by the Nordic Council of Ministers.

16. Kant Hvass, K. (2016).

2. Structure of this report

This report is structured as follows:

Chapter 3 describes the methodology used for mapping of textile flows and for the consultation of stakeholders.

Chapter 4 provides the results of the mapping of flows and quantities of new and used textiles through the Baltic economies, including collection of used textiles and their subsequent fate. It includes an overview of the wholesale/sorting sector in the Baltic countries.

Chapter 5 provides a summary of the barriers and opportunities to the circular economy of textiles split by sector/activity.

Chapter 6 provides an overview of the existing policy framework concerning used textiles and textile waste in the Baltic States. It goes on to make a first proposal for policy goals in circular textiles for the region, with a basis in the barriers and opportunities summarised in Chapter 5. Finally, it provides an overview of policy instruments which can be implemented to achieve these policy goals.

Chapter 7 presents the views of stakeholders on these policy instruments and **Chapter 8** concludes with a set of recommendations for each type of actor in the region.

3. Methodology and approach

3.1 Overall approach and activities

The starting point for this project is one where there was little existing knowledge concerning quantities of new and used textiles entering and being produced in the Baltic States, nor the extent to which these textiles are recirculated within the local or global economy following first use, or whether the value and resources that they represent are wasted. The specific challenges and opportunities for textile circularity at home and in the wider European context represented by the region were also unknown.

It was therefore necessary to begin with intensive information and data gathering before beginning the identification and development of proposals for solutions in the form of policy, initiatives and partnerships.

The following activities were carried out to implement the objectives of the project:

- Detailed mapping of new and used textile flows in the Baltic countries
- Identifying key Baltic opportunities and challenges to the circular economy of textiles
- Proposing regional goals for increasing textile circularity in a national and European context
- Developing proposals for national policy that could implement these regional goals
- Carrying out first steps in forming partnerships between actors in Baltic and Nordic countries in the value chain of used textiles

The detailed methodology for carrying out these activities is described below:

3.2 Detailed mapping of textile flows

3.2.1 Overview

The aim of the mapping exercise in the three countries was to provide a foundation for the subsequent work of the project. Mapping of textile flows has never been carried out in the Baltic countries before. Approaches to the mapping were similar to those that have been used in the Nordic countries¹⁷ using a combination of statistical data and surveys of actors in the value chain of used textiles. However, unlike the Nordics, the Baltic region is a large importer of used textiles and the import/sorting/wholesale sector was a key element of the mapping studies. The mapping intended to answer the following questions:

1. *What quantities and types of new textiles are purchased in the Baltics (overall and per capita)?*
2. *What quantities of second-hand textiles are consumed in the Baltics?*

17. For example Tojo et al (2012), Watson et al (2018b).

3. *What share does second-hand contribute to overall consumption of textiles?*
4. *What share of consumed textiles is collected separately following use and who carries out the collection?*
5. *What quantities of textiles end in mixed household waste for incineration/landfill?*
6. *How are the separately collected textiles treated, what share is reused or recycled domestically, what share is exported and what share is landfilled/incinerated?*
7. *What challenges do collectors experience in collection, reuse and recycling?*
8. *What quantities and types of used textiles are imported to the Baltic countries, by whom and for what purpose?*
9. *How are the imported textiles treated, what share is reused or recycled domestically, what share is re-exported following sorting and what share is landfilled/incinerated?*

The focus of the mapping covered by the first six elements above was on textiles passing through private households. Neither textiles included in industrial waste nor waste textiles from businesses were included unless these were part of municipal waste streams. Moreover, no attempt was made to map direct exchanges of clothing and other textiles between consumers via flea markets, online sales, swap initiatives, informal exchanges between family and friends, etc.

3.2.2 Product scope, data year and units

Textile products and streams included

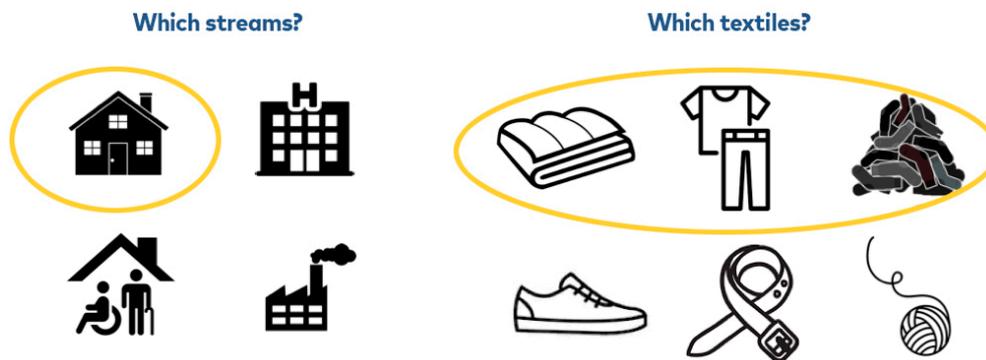
Streams: As mentioned above, the focus of the mapping covered by the first six elements above was on textiles passing through private households. With respect to used textiles/textile waste: used textiles/waste from industry or business were not included unless these are covered by municipal waste collection. With respect to consumption of new textiles it was not possible to differentiate in trade and production statistics between textiles intended for households and textile products intended for businesses (e.g. workwear/uniforms). Typically, at least 85% of textile products are consumed by private households.

Product types: for calculating consumption of *new textiles*, the focus has been on clothing and home textiles for use in households and similar textiles for use in the public and business sectors. Carpets, upholstery on furniture, duvets and pillows, shoes and other products for which textiles represent a minority of the product's total weight have not been included. Moreover, only final products are included in our mapping of textile flows, not semi-manufactured components such as fabrics. More specifically, for new textiles all products that have Common Nomenclature¹⁸ CN 2-digit codes 61 and 62 and a selection of the products that have CN 2-digit code 63¹⁹. This comprises 39 different product types at the CN 4-digit level.

18. For a description see https://ec.europa.eu/taxation_customs/business/calculation-customs-duties/what-is-common-customs-tariff/combined-nomenclature_en and for a full list of 2-digit, 4-digit and 8-digit CN codes see <http://www.cnwebb.scb.se/?languageld=GB>

19. Products with 4-digit CN codes 6301, 6302, 6303 and 6304 were included.

Figure 1: overview of scope of mapping study



For flows of *used textiles*, it is not always easy to remain within this product scope. Used textile collectors often include shoes, bags and non-textile clothing such as leather jackets when reporting on weights of collected and exported textiles. As a result, the quantities of consumed new textiles that are subsequently separately collected by collection organisations and waste companies can potentially be overestimated. Where possible, effort has been made to exclude shoes, bags, etc. from the collection quantities.

Data year

When the mapping survey was carried out, the latest data year available on imports, exports and production data required for calculating consumption quantities of new textiles was 2018. Surveys of quantities of used textiles collected and managed by all organisations surveyed are also for year 2018.

Units

Flows of products are presented in physical units as far as possible rather than economic value. Where physical data is not available (e.g. production data is only available in monetary value and pieces or square metres but not tonnes) these have been converted to tonnes using the methodology described below.

3.2.3 Calculations of annual supply of new textiles

Supply of new textiles to the domestic economy have been calculated using the simple equation:

$$\text{Supply (tonnes)} = \text{Domestic production} + \text{Imports} - \text{Exports} \quad (1)$$

Data availability

Import and export data for 2018 was downloaded from the UN Comtrade Database²⁰. This database includes flows of product categories of all types measured in kg and US dollars. Product categories are given in Common

20. <https://comtrade.un.org/>

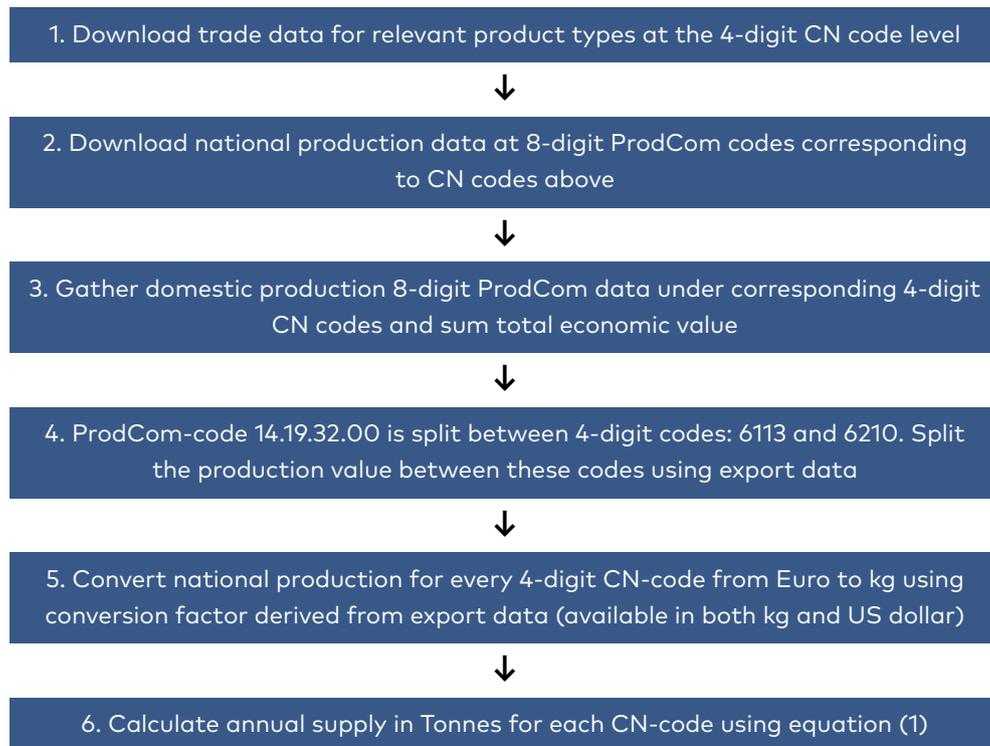
Nomenclature format at 2 digit, 4-digit and 8-digit levels.

Domestic production data for 2018 is only available in ProdCom format²¹. ProdCom data for all EU countries is available in Euro and in a range of physical units depending on the product. For clothing and textiles, the physical unit can be pieces, m² or weight, but pieces is the most usual unit.

Conversion tables from ProdCom to CN codes were obtained from Eurostat. The conversion tables are not 1-1 conversions i.e. there is not a single 8-digit ProdCom code for every 8-digit CN code and vice versa. In some cases, the conversion is one-to-many, in other cases many-to-one. However, with one exception there is a many-to-one conversion between 8-digit ProdCom codes and more aggregated 4-digit CN codes. To reduce the complexity of calculations, we therefore used 4-digit CN codes for imports and exports and 8-digit ProdCom codes for domestic production.

Calculation steps

The following steps were carried out to calculate supply of new textiles:



Step 6 was also carried out for imports and exports of used textiles using CN codes 6309 and 6310. For obvious reasons, used textiles are not included as a production code in domestic production data. The results are given in Chapter 4.1 later.

3.2.4 Calculations of annual supply of second-hand textiles

Baltic countries are important importers of used textiles. Much of this may be re-

21. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:PRODCOM_list

exported again following sorting but a significant share may be recirculated to citizens. To estimate the national consumption of second-hand textiles the following equation was used:

$$\text{Supply} = \text{Domestically collected used textiles sold or donated domestically for reuse} + \text{Imports of used textiles sold domestically for reuse} \quad (2)$$

Separate collection quantities sold for reuse domestically were estimated using the methodology described under 3.2.5 below.

Quantities of imports of used textiles that were sold for domestic reuse were estimated following the methodology described under 3.2.7 below. The results were quality checked against data for imports and exports of used clothing and rags (CN codes 6309 and 6310) as obtained from UN Comtrade data.

3.2.5 Estimating separate collection quantities and treatment of used textiles

Donations of textiles to charities, private collectors

Charities and private collectors that collect textiles from households and businesses were identified through desktop research by the national partners. These organisations were contacted and asked a range of questions via a survey sent by e-mail followed up as necessary by phone calls and/or meetings carried out by the relevant national partner. The questions concerned issues such as what quantities they collect, how and where do they collect them, what they do with them after collection and what obstacles they have experienced to increased collection, reuse and recycling. The full survey questionnaire (English version) is provided in Appendix 1.

Table 3.1 gives an overview of the numbers of larger collectors in each of the three countries that were contacted and how many of these responded. In Lithuania, the responding organisations included one clothing brand and one commercial private collector. Names of the organisations have been kept anonymous in this report to protect commercial interests.

Table 3.1: Overview of commercial and charitable collection organisations contacted and response rate

	Estonia		Latvia		Lithuania	
	Commercial	Charitable	Commercial	Charitable	Commercial	Charitable/ social
Contacted	4	5	1	4	3	9
Responded	1	4	1	3	2	8
<i>Estimated share of sector that responded (by volume)</i>	73%		99%		99%	

Collection by municipalities

In Estonia, waste collection services are fully liberalised: most of the waste companies are privately owned and carry out waste collection under contract to municipalities. There are six waste companies that carry out almost all collection for the 79 municipalities. In Lithuania, waste collection is organised via 10 regional waste management centres who also directly run all civic amenity centres. In Latvia, municipal waste collection is managed by a municipality-owned enterprise or one/several private companies operating in the same territory. 18 companies were identified covering the whole of Latvia.

In Estonia, all municipalities are legally obligated to ensure the provision of separate collection services of used textiles (textile waste) at civic amenity sites (see under Chapter 6 later). In Lithuania and Latvia this is not the case, but some municipalities and/or contracted waste companies, nevertheless, carry out separate collection of textile waste.

Municipalities and/or the waste companies that are contacted to collect and treat municipal waste in the three countries were sent a questionnaire survey (see Appendix 2). The questionnaire included questions concerning textile waste collection in civic amenity sites, who operates this collection system and how much textile waste is collected. The respondents were asked to make it clear whether the collection was run by the municipality/waste company using their own containers **or** by a charitable/commercial collector under agreement with the municipality (e.g. through permission to set up containers in civic amenity centres). This was to avoid the risk of double-counting of collection quantities reported by 1. charities/commercial collectors and 2. municipalities, respectively.

Questions were also included on the treatment of the separately collected textiles and the share of collected textiles that were reused domestically, recycled domestically, exported for reuse or recycling or landfilled/incinerated.

In Estonia, the questions on collection were sent to municipalities while the questions on treatment were sent to the private contracted waste companies. In Lithuania the full questionnaire on both collection and treatment was sent to the Regional Waste Management centres, rather than to the municipalities themselves. In Latvia the full questionnaires were sent to the municipal or commercial waste companies carrying

out municipal waste collection and treatment under contract to the municipalities. Table 3.2 provides an overview of the numbers of municipalities and/or waste companies contacted and the numbers that responded with information in each country.

Table 3.2: Overview of municipalities/waste companies contacted and response rate

	Estonia		Latvia	Lithuania
	Municipality	Waste companies contracted by municipalities	Municipal/commercial waste companies	Regional waste management centres
Contacted	77	6	18	10
Responded	19	4	7	10
<i>Estimated share of sector that responded (by population)</i>	>90%		55%	100%

3.2.6 Textiles in mixed waste streams

The textiles that are disposed of in mixed household waste were calculated using two methods:

1. A **mass balance method** where it is assumed that the maximum quantity of textiles discarded in mixed household waste is the annual consumption of both new and used textiles minus the annual volume of separately collected textiles. Mass balance assumes *steady state* conditions where both the purchases of new (and used) textiles and stock of textiles held by households are constant from year to year.
2. A **method using existing picking analyses of waste samples** from mixed household waste streams to calculate average shares (by weight) of textiles in mixed household waste streams²². This is then multiplied by total quantities of *mixed* household waste in 2018 to provide a total volume of textiles. Quantities of mixed municipal waste collected in 2018 was available in Estonia and Lithuania. In Latvia total volumes of mixed municipal waste were estimated from Eurostat municipal waste data²³. This approach includes some potential error²⁴.

Where textiles in mixed waste using the two methods differed *significantly*, explanations for this difference were investigated.

The ultimate fate of textiles in mixed waste streams was identified using national

-
22. The average shares of textiles in mixed municipal waste as derived from picking studies were Estonia, 5%, Lithuania, 7.5% and Latvia, 4.8%.
 23. Mixed municipal waste volumes have been assumed to be equivalent to quantities landfilled and incinerated with or without energy recovery. The data has been derived from Eurostat's *Municipal waste by waste management operations [env_wasmun]* dataset.
 24. Landfilled and incinerated municipal waste are not necessarily exactly equivalent to quantities of collected mixed waste. Some separately collected municipal waste may also end in incineration and/or landfill. We have already seen that this is the case for textiles and may also be true for a share of some other separately collected fractions such as plastics. Thus, the Eurostat based method may overestimate quantities of mixed waste and thus overestimate quantities of textiles in mixed waste.

data for municipal waste treatment.

3.2.7 Import and processing of used textiles by sorting companies/wholesalers

The Baltic countries are significant importers of used textiles. Much of these imports are unsorted used textiles ('original') or pre-sorted textiles with the better qualities filtered off for sale in the collection country. The original and pre-sorted textiles are typically imported for detailed sorting in sorting facilities in the Baltics by commercial or charitable organisations. There may also be imports of fully sorted fractions for direct sale on second-hand markets or for donations.

Charities and companies who act as importers, sorters and wholesalers were identified by desktop research and consultation with industry experts. All of these were contacted, and survey questions sent via email. These were followed up by telephone calls/physical meetings as necessary.

Questions concerned the quantities of imported textiles, countries of origin and the destination of the imported textiles (export for reuse and recycling, sold for reuse domestically, recycled domestically or sent to final treatment (incineration/landfill)). The survey also included questions regarding domestic and global markets for reuse and recycling and how these have changed in recent years and general economic conditions for the sector.

The full survey questionnaire is provided in Appendix 3.

Table 3.3: Overview of the numbers of importers/wholesalers contacted and the response rate

	Estonia	Latvia	Lithuania
Contacted	10	5	14
Responded	4	3	5
<i>Estimated share of sector that responded (measured in volume of imports)</i>	85%	20%	68%

Table 3.3 provides an overview of the number of importers in each of the three countries that were contacted and how many of these responded. Some of these organisations also collect used textiles within the countries and were contacted under the survey described in Section 3.2.5.

3.3 Methodology for stakeholder involvement

Besides collecting data on post-consumer textile flows in the Baltic region, the project also aimed to gather views from key stakeholders on the topic in order to identify the sector's challenges and opportunities, to understand the behaviour of key stakeholders that shape the market and their expectations and plans for future.

This is a first project in the Baltic region that addresses textile waste and the circular economy from a national and regional perspective, thus it gave a good opportunity to engage with stakeholders across the entire sector at both the national level and the regional level.

In total, 10 local stakeholder meetings were organised throughout the project. The main topics for the stakeholder gatherings were data validation, insights and comments on policy intervention proposals and insights and perspectives on broader sector development issues. Among the main stakeholder groups were representatives from the textile industry and retail sector, reuse companies and organisations, collection and sorting organisations, public sector (national authorities and local authorities), academia, waste management and recycling companies and industry associations.

Events included both international events which concerned the project as a whole and to which stakeholders were invited from all three Baltic countries plus presenters and stakeholders from the Nordic countries and further afield who were invited to present best practices from outside the region, and for inclusion as experts in panel discussions.

The events differed in their focus and objectives and varied in the degree to which stakeholders were given the opportunity to present their views and discuss solutions. The local events were particularly aimed at inviting views of national stakeholders both on the mapping work described in national mapping reports and summarised in Chapter 4 of this report, but also on the need for new policy and other initiatives to provide solutions to observed challenges.

The international and national events are described below.

The feedback from stakeholders is provided in Chapter 7 and provided a foundation for the development of key recommendations for further action presented in Chapter 8.

3.3.1 International events

Three international events were held, one in each of the Baltic capitals.

Tallinn, 12th December 2018, Used textiles: waste or value?²⁵

Objectives: To introduce the Nordic-Baltic collaboration project; to gather various stakeholders in the Nordic-Baltic region around the topic of post-consumer textile waste and the circular economy; to raise awareness of post-consumer textile waste issues; to introduce recent developments in the field, and to share best practices from the Nordic, Baltic and European countries on textile collection and sorting models, business models for reuse and recycling, policy initiatives and technology developments.

Key elements: Kick-off conference. Presentations of programmes from outside the Baltics: Nordic work on textiles, the European Clothing Action Plan, the Finnish Telaketju project. Presentations from companies working within circular textiles in the Baltic and Nordic countries.

25. See <https://www.sei.org/events/used-textiles-waste-or-value/>

Stakeholder types and numbers participating: textile collection, reuse and recycling organisations; textile producers, brands and retailers; public authorities incl. local governments and policymakers, industry associations, academia; other interested participants from Nordic and Baltic countries. Total number of participants: 120.

Riga, 9th September 2019, Policy measures for textiles circularity²⁶

Objectives: To learn about EU and Nordic experiences on policy interventions and to discuss potential policy measures for the Baltic region

Key elements: Mid-term conference. Presentation of interim flows of new textiles and post-consumer textiles in the Baltic States and potential policy objectives; presentations of EU and Nordic experiences in EPR and other relevant policy initiatives; facilitated workshop on policy that can prepare the region for the EU 2025 requirement for the separate collection of textiles

Stakeholder types and numbers participating: The new and used sector's main actors plus policymakers from the three countries. Total number of participants: 60.

Vilnius, 28th January 2020, Nordic-Baltic Cooperation for Textile Circularity²⁷

Objectives: To share insights and best practices from the industry, to discuss current challenges and opportunities for sector development and find potential collaboration partners

Key elements: Final conference. Presentation of mapping results and inputs to sector development; presentations from four experts on industry development within sorting and recycling; stakeholder workshop on sector development; pitching session by Nordic-Baltic companies for finding collaboration partners within the Nordic-Baltic region; study visit to the largest Baltic textile sorting facility

Stakeholder types and numbers participating: Policy makers, businesses and organisations in the value chain of textiles both from the Baltic countries and from the Nordics. Total number of participants: 120.

3.3.2 National meetings

Three local stakeholder meetings were organised in **Estonia** where two of them were organised in collaboration with the Estonian Ministry of the Environment. The first meeting gathered key stakeholders and study informants for textile waste flow data validation and discussion. The second meeting gathered public sector representatives, industry stakeholders and academia to discuss policy related issues and interventions. The third meeting gathered a wide range of stakeholders and focused on topics related to industry development such as technology developments for circularity, new business and collaboration models combined with policy interventions. In total 70 people attended these events.

In **Latvia**, two local stakeholder events took place. The first, held in the framework of the annual democracy LAMPA, focused on mapping results, while the second meeting focused on providing a national perspective of the policy recommendations.

26. See <https://www.sei.org/events/policy-measures-for-textiles-circularity/>

27. See <https://www.sei.org/events/nordic-baltic-cooperation-for-textile-circularity/>

In total, approximately 120 people attended these events.

There were three local stakeholder meetings organised in **Lithuania**. One of them was organised in collaboration with the Ministry of the Environment of the Republic of Lithuania. The first meeting was oriented towards the introduction of the project and its initial mapping results. This meeting helped to update information and data for Lithuanian mapping. Furthermore, it was a starting point when the open discussion began and textile waste flow was proven as one of the priority waste flows in Lithuania. The second meeting was organised by the Ministry of Economics and Innovation and was focused on the collaboration between different stakeholders while discussing the final mapping results and policy recommendations. The final meeting was held in the form of a webinar and mostly oriented to present final results of the Baltic mapping report and to discuss the next steps for possible collaborations between the stakeholders to develop circularity in the used textile sector. In total 80 people participated at these events.

4. Overview of textile flows in the Baltics

The key results of the mapping studies are presented in this chapter. Overall results for the three countries are gathered under graphs and tables but the chapter also includes subheadings for each country that includes more detailed descriptions. More detailed results have been compiled in the individual country reports.

4.1 Consumption of new and used textiles

4.1.1 Consumption of new textiles

Table 4.1 presents estimates of the supply of *new* textiles to the Baltic states in 2018.

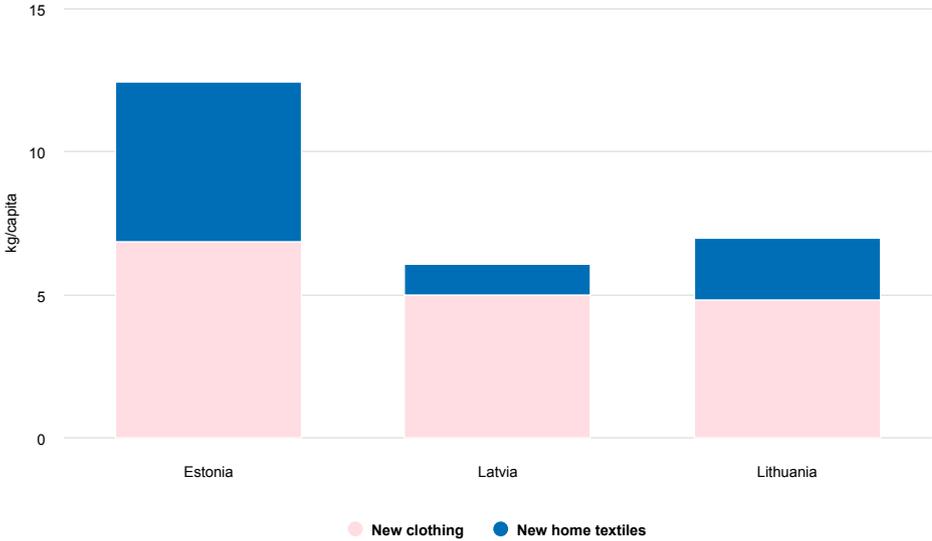
Table 4.1: Supply of new textiles by weight (2018)

Product type	Estonia		Latvia		Lithuania	
	Tonnes	Kg/capita	Tonnes	Kg/capita	Tonnes	Kg/capita
Overcoats, anoraks	1162	0.88	1075	0.56	1552	0.55
Suits, blazers, trousers, shorts, dresses and skirts	2155	1.63	2916	1.51	3923	1.40
Shirts, blouse, tops	407	0.31	488	0.25	1112	0.40
Underwear, T-shirts, vests, socks and nightclothes	2447	1.85	2232	1.15	2788	0.99
Sweaters and cardigans	817	0.62	679	0.35	1436	0.51
Baby clothes	171	0.13	683	0.35	375	0.13
Sportswear and swimwear	898	0.68	697	0.36	1119	0.40
Garments covered/impregnated with plastic	21	0.02	41	0.02	-305*	-0.11*
Handkerchiefs, ties, scarves, gloves and other	589	0.45	657	0.34	1311	0.47
Non-woven garments	400	0.30	211	0.11	161	0.06
All clothing	9068	6.87	9680	5.01	13474	4.80
Blankets and rugs	2686	2.04	-180	-0.09	867	0.31
Bedlinen, tablecloths, towels and cloths	1480	1.12	1262	0.65	3204	1.14
Curtains and drapes and other interior furnishings	3136	2.38	992	0.51	2066	0.74
All household textiles	7303	5.54	2074	1.07	6137	2.18
TOTAL NEW	16371	12.41	11753	6.08	19611	6.98

* Negative values can occur as a result of temporary stocking over a year end. For example, large quantities of textiles of a certain product type that were produced in 2017 but first exported in 2018 might lead to a negative apparent consumption in 2018

It has not been possible to split the consumption shown in Table 4.1 between private households, government/public institutions (such as the healthcare sector, schools and kindergartens, nursing homes and other municipal services) and private businesses (linen for hotels, uniforms and workwear purchased for use by staff in companies, etc.). However, it is assumed that private households represent at least 80% of total consumption in line with findings in other countries.

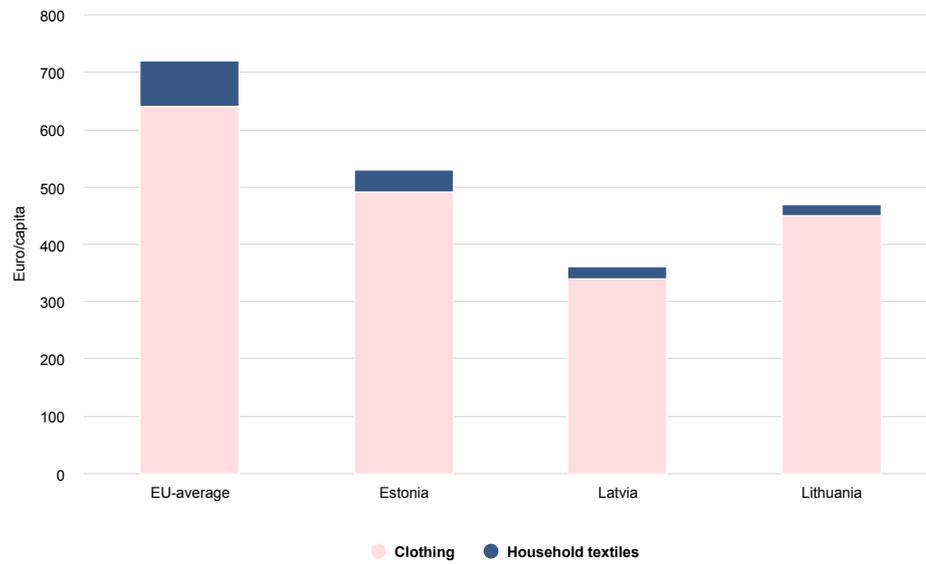
Figure 4.1 Consumption of clothing and household textiles by volume (2018)



Source: own calculations developed using UN Comtrade data and EU ProdCom data

According to the available data, Estonia has a consumption rate (12.4 kg/capita) more than double that of Latvia (6.1 kg/capita) and 78% higher than Lithuania (7.0 kg/capita) (see Figure 4.1). Consumption is however growing rapidly in the latter two countries, increasing by 25% in Latvia and 37% in Lithuania between 2017 and 2018. In Estonia, consumption grew more slowly at 9%. Consumption of household textiles in Estonia is estimated to be particularly high at 5.5 kg/capita, representing 45% of total consumption of textiles. In Lithuania, household textiles represent 31% of consumption while in Latvia it is just 18%.

Figure 4.2 Consumption expenditure on clothing and household textiles (2018)



Source: data extracted from Eurostat dataset nama_10_co3_p3

Figure 4.2 presents consumption expenditure per capita on clothing and household textiles as reported to Eurostat in the same year (2018). Although consumption in Estonia is higher than in the other two countries, the difference is noticeably less than indicated by volume calculations presented in Table 4.1. Moreover, expenditure on household textiles in Estonia represents only 11% of the total.

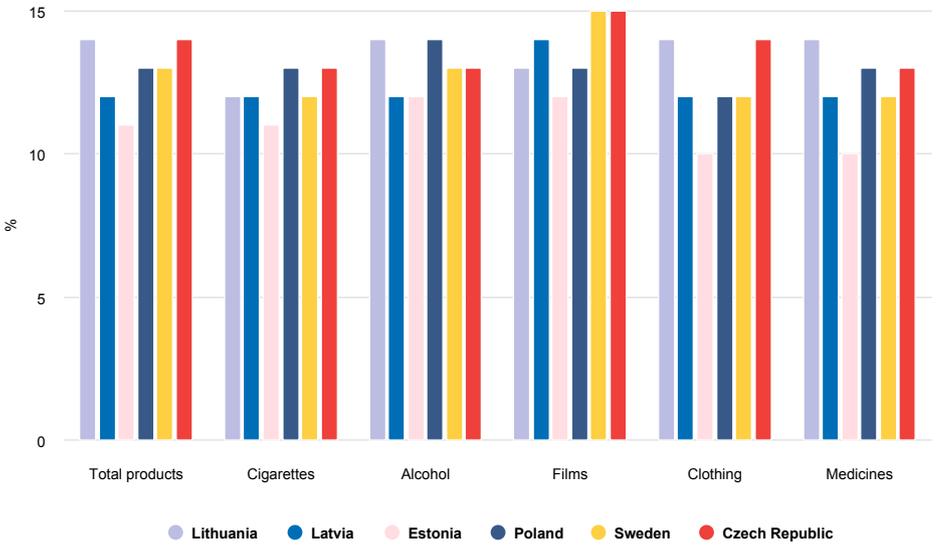
These differences can partially be explained by a lower kg price of household textiles compared to clothing, as is evident from the trade data. However, there are also some potential errors in the data and calculations.

Firstly, domestic production data is not available for some product types in the EU's ProdCom tables. This occurs where production of a certain product type is carried out by one or two companies, in which case the data is hidden in data released by national statistical organisations to protect commercial interests. This is only the case for Latvia where no less than 38% of ProdCom codes for textiles are hidden for 2018 production. There is no hidden data for Estonia or Lithuania.

Non-hidden production in Latvia comprised just over 4500 tonnes in 2017. If we assume that average production quantity for a hidden code is similar to that of a visible code, consumption in Latvia may be underestimated by as much as 1700 tonnes or 0.9 kg/capita.

An additional uncertainty results from two types of consumption that aren't recorded in the official import/export statistics: 1) textiles that are imported by grey actors that do not register these imports and who subsequently sell the textiles on black markets and 2) online purchases by households on websites run in other countries. A study by Oxford Economics (2018) estimated that between 10% and 14% of clothing consumption in the Baltic States is via illicit sources. The figure was similar in Sweden (see Figure 4.3).

Figure 4.3: Stakeholder estimate of share of consumption that is illicit in 2017 for a range of product groups



We can find no explanation for the high apparent consumption by volume of household textiles in Estonia. We also calculated consumption for 2017 using import, export and domestic production data to test whether there were errors in the 2018 data. However, the results were similar to 2017, with total consumption at 11.4 kg/capita of which 46% was household textiles.

4.1.2 Consumption of used textiles

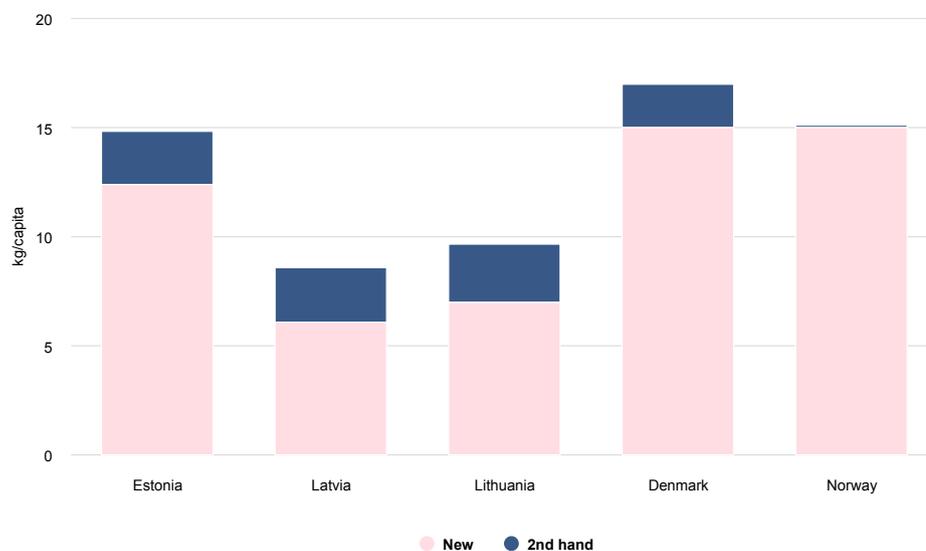
Consumption of used textiles was estimated based on surveys of used textile collection organisations and importers/wholesalers of used textiles to the Baltic countries, the results of which are described in detail in Chapters 4.3 and 4.5 respectively.

Table 4.2: Overview of the sale/donation of used textiles in tonnes and per capita (2018)

	Estonia		Latvia		Lithuania	
	Tonnes	Kg/capita	Tonnes	Kg/capita	Tonnes	Kg/capita
Domestically collected textiles sold for reuse within country	680		270		20	
Imported textiles sold for reuse within country	2,480		4,450		7,680	
<i>Total reuse in 2018</i>	<i>3,160</i>	<i>2.4</i>	<i>4,720</i>	<i>2.5</i>	<i>7,700</i>	<i>2.7</i>

The level of consumption of second-hand textiles is similar within the three countries ranging from 2.4 kg/capita in Estonia to 2.7 kg/capita in Lithuania. Note that these quantities do not include textiles that are directly exchanged between citizens either informally (friends and family) or more formally through physical flea-markets or online exchange sites.

Figure 4.4: Consumption of new and second-hand textiles in the Baltics and selected Nordic countries (2018*)



*data for Denmark is from 2016

Second-hand textiles make up a significant share of total consumption of textiles by households, particularly in Latvia and Lithuania (29% of total consumption) but is also not insignificant in Estonia (16% of total consumption) (see Figure 4.4). This is higher than in the Nordic countries: in Denmark, that is otherwise thought to lead the Nordics in recirculation of textiles, second-hand represents 12% of total consumption²⁸. In Norway the figure is much lower at less than 1%²⁹ (see Figure 4.4).

The majority of the second-hand sales in the Baltics is supplied by imported used textiles rather than textiles recirculated within the country (see Table 4.2). Only in Estonia is the internal recirculation significant (22% of total). As such, the Baltic countries play an important role in the European circular economy for textiles.

4.2 Separate collection of used textiles

4.2.1 Overview

Total separate collection of used textiles in the Baltic countries is estimated at just over **7,450 tonnes in 2018** (see Table 4.3).

Table 4.3: Separate collection of used textiles in the Baltic countries in tonnes (2018)

	Charities/ social enterprises	Commercial collectors	Brands	Municipal waste companies/ contractors	Total*
Estonia	2,152	806	106	1,804	4,868
Latvia	352	47	93	36	528
Lithuania	195	1,110	134	616	2,055
Sum*	2,697	1,963	333	2,456	7,451

**Note that these quantities may include shoes, bags and other items that lie outside the product scope*

Estonia contributed two thirds of this quantity and collected significantly higher quantities per capita than the other two Baltic States (see Figure 4.5). Moreover, a much higher share (30%) of consumed new textiles end up being collected separately in Estonia compared to 11% and 5% in Lithuania and Latvia respectively. Collection rates achieved in Estonia are not so much lower than collection rates in selected Nordic countries (see Figure 4.5 and Table 4.4).

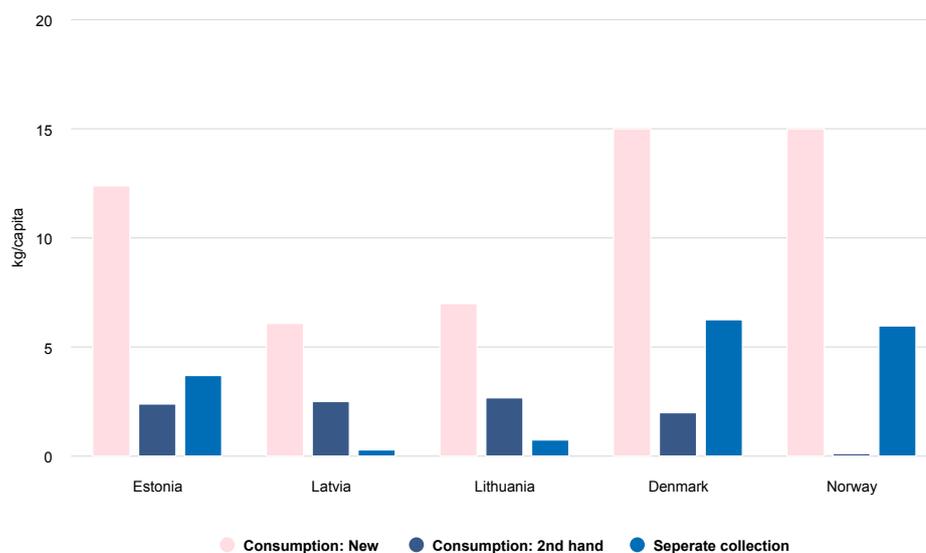
Across the three Baltic States as a whole, separate collection is relatively evenly split by charitable organisations, commercial/private collectors and municipalities/contracted waste companies (see Figure 4.6). However, the dominant actor types

28. Derived from Watson et al (2018).

29. Derived from Watson et al (2020a).

vary significantly from country to country; in Lithuania, charitable collectors have a relatively small share, whereas they dominate collection in Latvia. Moreover, one retail brand carries out a significant share of collection in Latvia (see Figure 4.6). With respect to this last point, collection by this brand is similar in terms of volume for all three countries, but it represents a larger share in Latvia due to low overall collection quantities.

Figure 4.5: Separate collection as a share of annual consumption of new and used textiles in the Baltic States and selected Nordic countries (2018*)



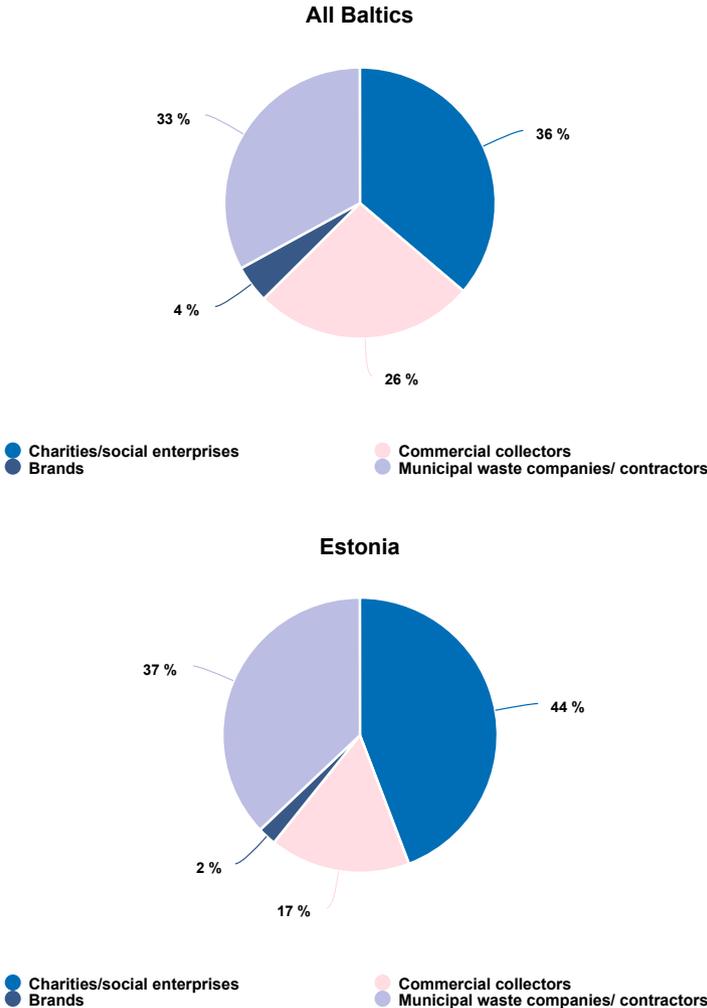
*Data for Denmark is from 2016

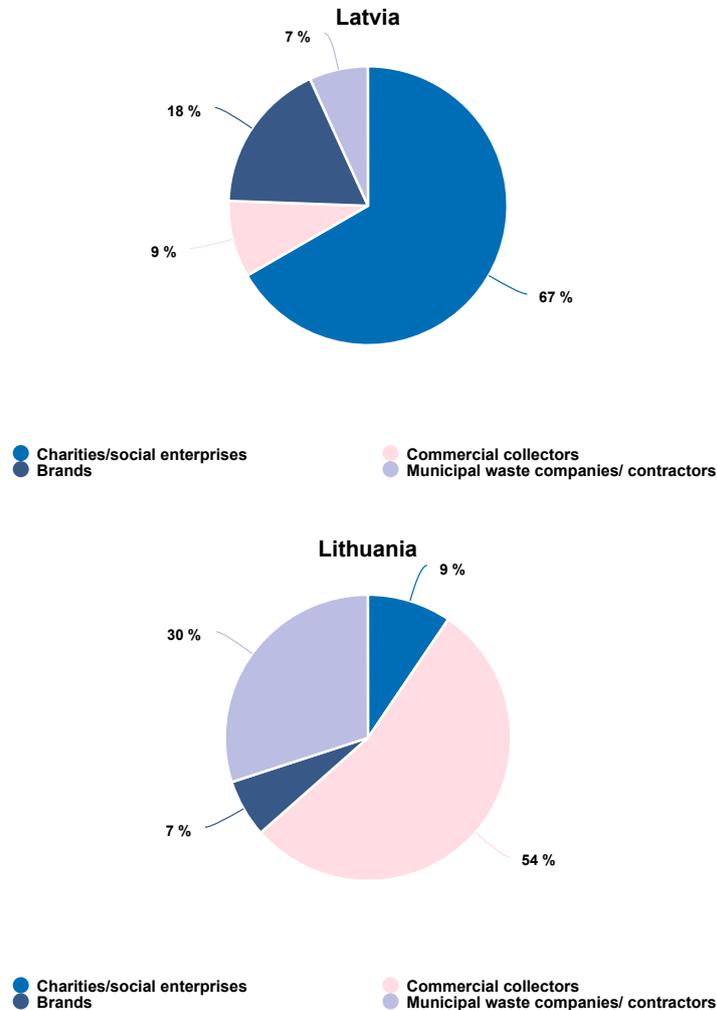
Table 4.4: Separate collection of used textiles as a share of consumed textiles in the Baltic States and selected Nordic countries

	Annual consumption		Annual separate collection		
	New (kg/ca)	2nd hand (kg/ca)	Quantity (kg/ca)	As share of annual consumption (new)	As share of annual consumption (new and 2nd hand)
Estonia	12.41	2.4	3.68	30%	25%
Latvia	6.08	2.5	0.28	5%	3%
Lithuania	6.98	2.7	0.75	11%	8%
Denmark	15	1.97	6.26	42%	37%
Norway	15	0.11	5.99	40%	40%

Collection is predominantly carried out via bring-banks placed in civic amenity centres and on streets plus collection over the counter in charitable shops and retailer(s). There is no door-to-door collection of used textiles in the Baltic countries.

Figure 4.6: Collection share by various types of actors in Baltic region and individual countries





Collection activities in the individual countries are described in more detail in the following sections.

4.2.2 Separate collection in Estonia

Separate collection of used textiles (reusable textiles and textile waste) is mainly based on the bring system. There are three main collection options available in Estonia:

1. Collection containers for reusable textiles in public places
2. Collection points/bring banks for reusable textiles arranged by charities and private collectors (located usually in their shops, premises or more accessible locations)
3. Collection in public waste collection centre/civic amenity sites (usually only for textile waste)

Most of the collection containers in public places are owned by the municipalities. These containers are meant only for reusable textiles (clothes and household textiles) collection. The municipality owned containers are however operated (emptied) by one large private collector. Tallinn was the first Estonian municipality that established the municipality owned container network for reusable textiles. In

2014, the Tallinn Waste Centre set up 22 containers for used textiles. By 2019, the number of containers in Tallinn and nearby suburban areas had increased to 41. Containers for reusable textiles have been placed also in some of the civic amenity sites. The same public container model for collection of used textiles has expanded to Tartu, the second largest city in Estonia, and the city of Kuressaare in Saare county. Altogether, there are 65 public containers operated by the municipality-private collector partnership model.

There is an increased interest from municipalities to start or to expand the container collection networks, however they face many barriers. This is especially the case of smaller and rural municipalities, because they have difficulties in finding a partner who is willing to operate the container system. In sparsely populated areas, potential collection quantities are not large enough to cover the costs of collection and treatment (logistics, sorting, warehousing and treatment, etc.) and make it economically feasible for collectors to operate the system.

There is also one charity that operates their own public container collection network that is also designed for reusable textiles. It runs 45 containers in Tallinn and three bigger counties (Harju, Lääne and Rapla county).

Other charities and private collectors collect second-hand textiles via their own collection points and bring banks located usually in their stores and premises. Some collectors have started to collect reusable textiles also in shopping centres and other accessible locations.

According to the main charities and private collectors of used (reusable) textile, citizens have started to actively use the collection system for used textiles and donating more textiles than earlier. The largest charitable collector experienced an increase of 40% in collected reusable textiles between 2017 and 2018. According to this collector, citizens have become more aware of their options for donations as the larger collectors increase their market share, open new stores and set up bring banks in other suitable locations for collection of donations. The same charity also collects via annual campaigns in businesses. At the same time, the share of low-quality textiles and non-textile waste among the donated items has reportedly increased.

Although municipalities in Estonia have a legal obligation to collect textile waste from households at least in the civic amenity sites, not all municipalities live up to this requirement. According to Estonian National Waste Data, it is possible to hand over used clothing as waste in 25 civic amenity sites (data from 2019). Most of these civic amenity sites collect used textiles only as waste (under waste codes 20 01 10 for clothes and 20 01 11 for textiles). As described earlier, some civic amenity sites also have containers for reusable textiles which are operated by charities or private collectors of second hand textiles. In this case, the collection of used textiles is free of charge. However, when the textile waste is handed over in civic amenity sites, then in most cases people have to pay a fee according to the pricelist of the waste management company that operates the site (usually the fee level is the same as for mixed municipal waste).

4.2.3 Separate collection in Latvia

The research identified 7 organizations collecting used textiles in Latvia, with 6 of them participating in the research and 5 of them able to provide quantified information about their operations. This included private actors like fashion

businesses, social enterprises and charities, as well as waste management companies and municipality waste management companies. Most (85%) of the used textiles are collected by charities, 11% by companies, and the smallest share, (4%) by municipal waste companies.

Motivation for collection varies. Some of the actors collect used clothing to be directly donated to people in need, while others also sell the donated goods, using the proceeds for charity. One actor is collecting used clothing as part of their wider sustainability policy.

Collection is carried out through a range of collection solutions (see Table 4.5). Four organisations collect textiles in their own buildings; either in shops or their offices (in the case of charity organisations). Two organisations have drop-off stations in shopping malls and two have containers on public ground. One actor also involves a network of organisations covering most of the country.

Table 4.5: Collection sites for used textiles in Latvia

	In their amenities (stores/ offices)	External drop-off stations	Civic amenity sites
Charity 1	X	X	
Charity 2	X		
Charity 3	X	X	
Private 1	X		
Municipal Waste Company 1			X
Municipal Waste Company 2			X

Charity 1, which is responsible for 68% of total collection, collects via its own second-hand shops and bring banks placed on public ground. The charity doubled its apparent³⁰ collection from 147 tonnes in 2016 to 299 tonnes in 2018. It reports that this increase has resulted from an improved and more dense collection infrastructure and improved citizen awareness on opportunities for donation.

In 2018, two Latvian waste management companies ran bring banks for separate collection of textiles from households in their waste collection locations/civic amenity sites. These two companies were the only ones providing such opportunities for the separate collection of used clothing in 2018.

Unlike in Estonia and the Nordic countries, in 2018 there were no cooperative operations between municipal waste companies and commercial/charitable collectors in Latvia. None of the charitable/commercial actors received used clothing

30. The charity reports that it does not record the incoming flows of textiles. It records only the outgoing flows – sold and donated items, counting textiles (and other items[1]) in units, instead of kg or m3.

from waste management companies, nor did they place bring banks in civic amenity sites.

More recently in September 2019, a part of Latvia's inhabitants gained additional opportunities for disposing of used clothing (see Box 1).

Total estimated separate collection of used textiles in Latvia amounted to just 438 tonnes in 2018. This is overshadowed by the 12,000 tonnes of used clothing that were imported to Latvia in 2017.

Box 1: Latvia's largest waste company begins textiles collection

In September 2019 – February 2020, waste management company, Eco Baltia Vide, conducted a pilot, placing 20 containers for the separate collection of used clothes in Riga, Marupe, Tukums and Babite. The company's motivation for this pilot was to gather evidence on the quality, content and quantity of used clothing that can be gathered in Latvia to be able to assess possible steps in management of textiles waste.

The collected used clothes and garments were sorted in Tukums' facility to be able to gather detailed data on the quantity, quality and composition of the textiles thrown away by individuals. The company evaluated the recycling and selling opportunities of these used clothes and gained information about the costs of managing such a system. In total, 108.5 tonnes of textiles were collected during the pilot*. According to the Eco Baltia Vide assessment, approximately 40% of them had no economically feasible opportunities for resale or recycling, while the rest (approximately 60%) could be either recycled or reused. Out of the collected textiles, approximately 47.5 tonnes were landfilled due to the low quality, 37.4 tonnes were sold for use in developing countries, 1.2 tonnes given to recycling for free, while 22.5 tonnes were stored for later sale in markets.

The company has stated that following the analysis, it will put forward proposals for a comprehensive textile sorting system in Latvia**. It has also concluded an agreement with a business for recycling used clothes and garments***.

** Information from a press statement of Eco Baltia Vide issued in April 2020.*

*** Information from a press statement of Eco Baltia Vide issued in September 2019.*

****The company did not want to provide more detailed information about the location of the recycling company, but as currently there are no such facilities in Latvia, it will take place abroad.*

A recent public opinion survey showed that approximately 63% of Latvians clean their closets 1-2 times per year, with females, young people and persons with higher income levels among the most active. 89% of respondents said they would give away their used clothing for continued use, but 60% lack information on how they can do this about.

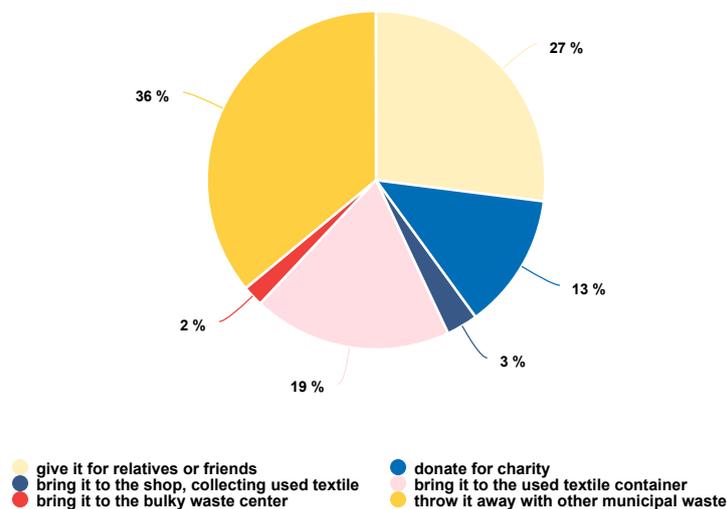
One third of the surveyed people said that they did not give away their clothes due to a lack of collection sites, which was particularly mentioned by people living outside the capital³¹. This suggests that improved infrastructure and awareness about possibilities to dispose used clothing will increase the amounts collected.

In addition to lack of infrastructure for households to donate garments, the low collection rates may also reflect a more sustainable consumption culture (where clothing is used until it is no longer functionally useful) and craftsmanship skills to repair and make use of used clothing, which may be cultural but also encouraged by lower income levels in Latvia compared to north-western Europe.

4.2.4 Separate collection in Lithuania

36% of Lithuanians state that they discard used textiles in mixed waste streams, with nearly two thirds, saying that they ensure their textiles are reused at the end of their lifetime through various means (see Figure 4.7 a). Informal exchange of clothes for reuse with family and friends has deep traditions and 27% of respondents claim to engage in this practice. However, it should be noted that there is often a wide gap between what people state that they do and actual behaviour.

Figure 4.7: Stated behaviour of Lithuanian consumers with respect to used textiles³²



31. Public opinion poll was conducted by the research company OMG Latvia in August 2019, surveying 701 inhabitants in the age of 18–74.

32. The results are aggregated based on the survey of consumers (3107 respondents) done by the Lithuanian media portal Lietuvos rytas. Kodėl žmonės drabužių pilnus maišus neša ne iš parduotuvių, bet į jas? 2019 April <http://www.bernardinai.lt/straipsnis/2019-04-20-kodel-zmones-drabuziu-pilnus-maisus-nesa-ne-is-parduotuviu-bet-i-jas/175423>

Based on answers to surveys and extrapolation to collectors that didn't respond, the quantity of used textiles collected separately in 2018 is estimated at 2055 tonnes (including shoes, bags, etc.) or 1880 tonnes (excluding shoes and bags, etc.). This corresponds to 0.66 kg/capita excluding shoes, bags.

Used textiles are collected by commercial collectors, charities and social enterprises. A single commercial collector is responsible for roughly 50% of all collection, with 8 charities responsible for 10% in total, 10 regional waste management centres (RWMC) responsible for 33% and a high street brand for the remaining 7% (see Figure 4.6 earlier).

The motivation for separate collection of used textiles differs between organisations. Charitable organizations and social enterprises collect textiles to deliver donations of textiles directly to people in need and/or to provide work in textile collection and treatment operations for people with a distance to the job market.

The motivation of Regional Waste Management Centres (RWMC) is two-fold: firstly to move towards closer implementation of the waste hierarchy and implementation of the 2025 EU requirement for separate collection of textiles, and secondly to divert textiles from mixed waste streams in order to protect equipment in mechanical biological treatment (MBT) plants for which textiles can prove to be problematic.

The motivation of the commercial collectors is economic, while the fashion brand that is collecting textiles is implementing social responsibility commitments in cooperation with an international textile collection and treatment company. The separate collection scheme can potentially provide economic benefits, but these are not the primary driver.

The majority of collection is carried out via traditional methods: bring-banks in civic amenity centres and textile collection containers in public places, collection in charity shops and in retail shops. There is no regular door-to-door collection in Lithuania.

However, the largest of the charitable collectors has a collection service for larger quantities that can be ordered by telephone in advance. A collection system has also been established and operated by shipment organizations which are also used for online purchasing of new goods (see Box 2).

Box 2: Courier-based collection in Lithuania

In March 2018, collection of used clothing and other used items were carried out as part of a campaign called 'The Box of Goodness' (*lt.: gerumo deze*)*. The Campaign and service covered the whole of Lithuania during the month of March.

Citizens could order a box on-line, to fill with used goods and to deliver it for free via a package services courier to sorting centres for sorting by volunteers and transferral to involved charity organizations for distribution to people in need.

More than 1100 households took part from 74 different towns and villages and delivered 10 tons of used goods for charitable use. This represents a very small share of total collection but is an interesting approach with respect to cooperation between organisations.

* <https://www.paperseal.lt/gerumo-deze>

RWMCs are increasing the numbers of bring-banks placed in civic amenity centres. However, as described later, the used textiles collected by RWMCs are currently mostly incinerated, and their input to the reuse market is very small. There also exists a number of private initiatives and online sites for direct exchange/resell/donation of clothes and home textiles between consumers (C2C), but C2C exchanges lie outside the scope of this study.

The commercial collection company manages 490 bring-banks distributed in the largest cities of Lithuania (Vilnius, Kaunas and Klaipeda) which comprise the majority of bring-banks outside of civic amenity centres in Lithuania. The containers are situated in locations which are easily accessible for the consumers. In 2018, 1110 tonnes of used textiles were collected by this collector. Over the coming years, more collectors are expected to appear on the market in order to manage and service new textile collection bring-banks in municipalities, implemented under the governmental program for municipalities (see Chapter 6 later).

The one fashion brand that collects used textiles in Lithuania works in cooperation with an international collection, reuse and recycling company. Textiles are collected across the counter in return for discount vouchers for their next purchase of new clothing. In this way, it is expected that the brand reaches people who otherwise may not deliver their textiles. The brand donates 2 Eurocents to Lithuanian charity (that also collects used clothing) for every kilogram of collected used textiles. Two more fashion brands that had earlier collected used textiles no longer perform this service.

With respect to other brands, there is as yet no official cooperation between retail companies and collectors regarding the collection of unsold clothing collections. However, collectors identified that some retail shops are unofficially using the bring-banks intended for private households. There have been intentions from some governmental institutions (police, fire and rescue services and forestry services) regarding the collection of used uniforms/workwear. However, no concrete cooperation has yet been established due to challenges in the process of treating uniforms which require significant manual labour to remove logos. Moreover, reuse options are not widespread and recycling is complicated by the mixed material composition and chemical treatment of some of the garments.

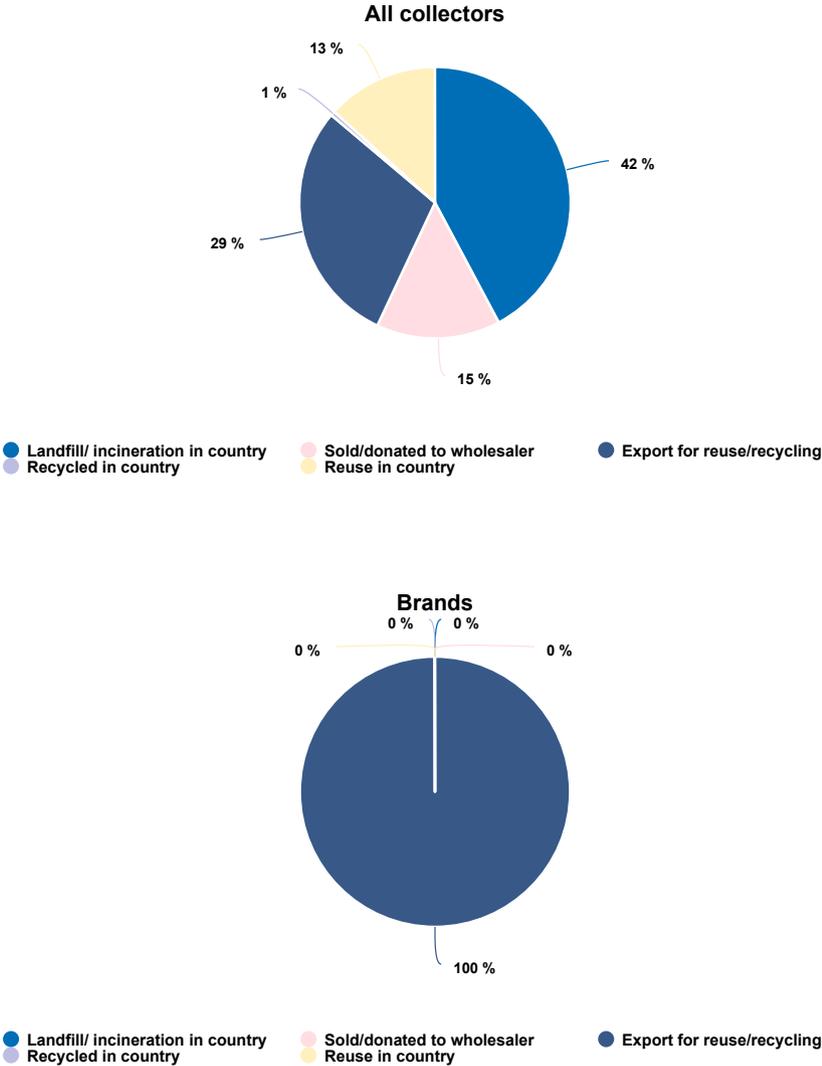
4.3 Treatment of separately collected textiles

4.3.1 Overview

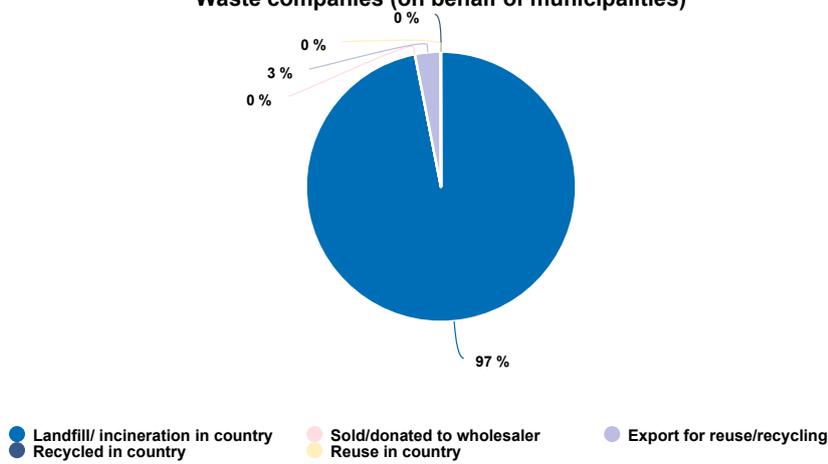
Although all collectors have different treatment profiles for the textiles that they collect, there are more striking differences between the various groups (see Figure 4.8).

The brand (only a single brand present in all three countries) works in collaboration with an international commercial wholesaler. All textiles collected in the brands retail stores are exported unsorted to Germany for detailed sorting, reuse and recycling. The international wholesaler does not release detailed information on the reuse or recycling shares, or the share that is incinerated/landfilled.

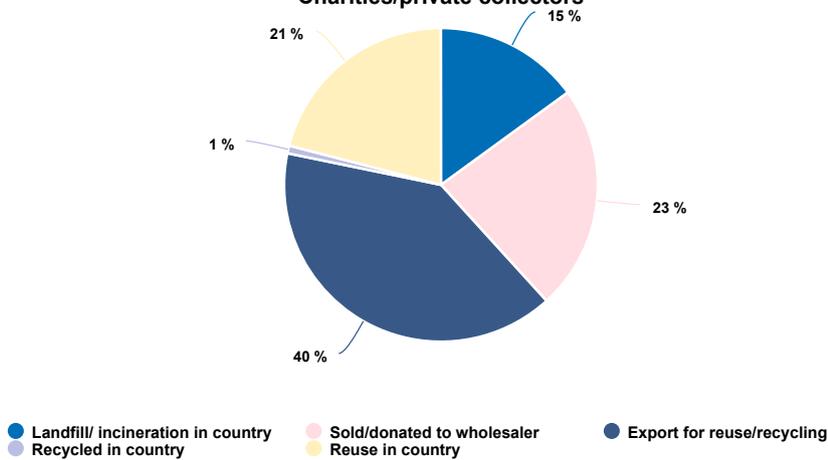
Figure 4.8: Treatment of separately collected textiles across all 3 countries (2018)



Waste companies (on behalf of municipalities)



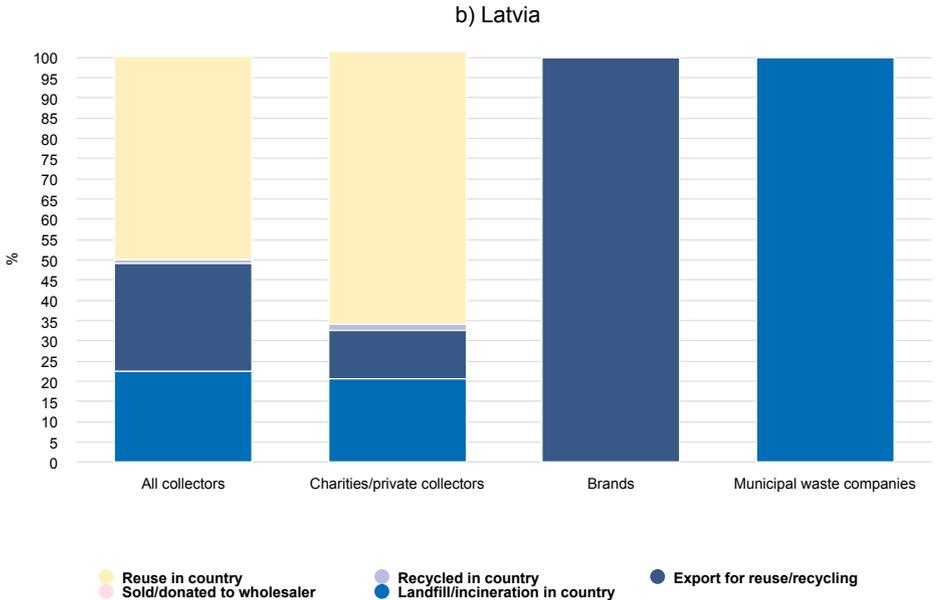
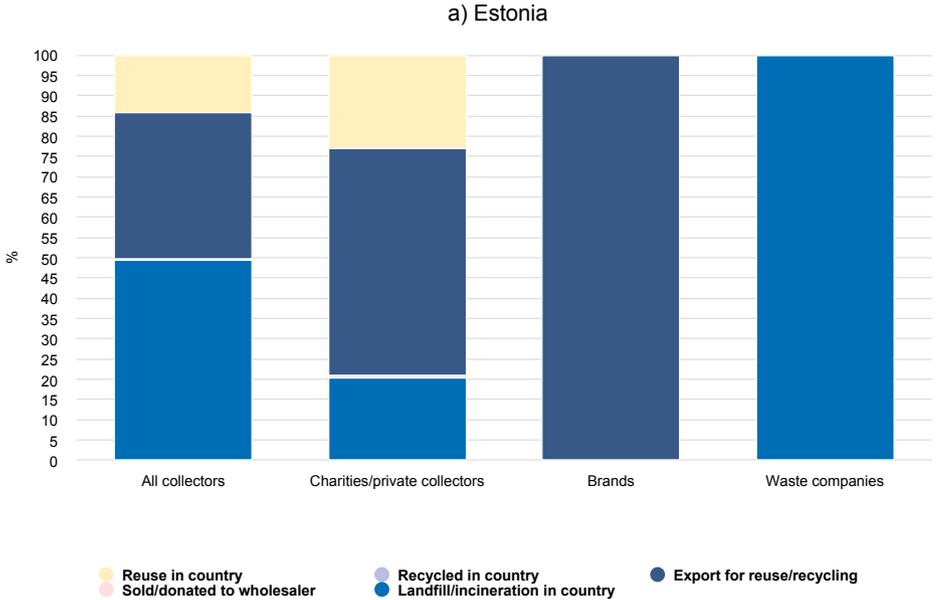
Charities/private collectors



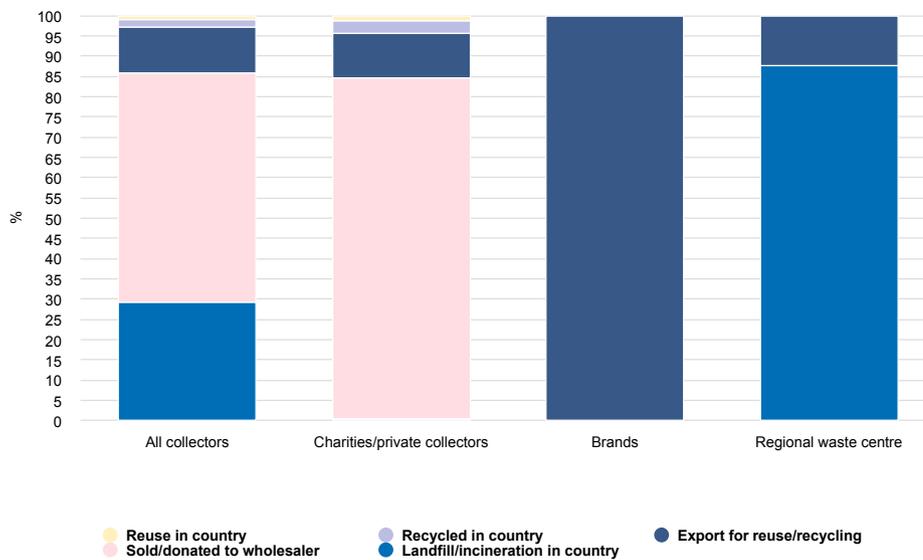
Whereas, the charitable and commercial collectors cannot find markets for approximately 15% of the textiles that they collect, and this share is sent to landfill and incineration, almost the entire quantity (97%) of textiles collected separately by waste companies working under contract to municipalities is subsequently sent for landfill and/or incineration. The waste companies claim that none of the textiles are reusable and that they have yet to find suitable recycling options/markets for the non-reusable share.

The non-reusable claim is most likely for textiles collected in Estonia, where much of the waste companies' collection is carried out in parallel with collection of reusable textiles by charities in the same civic amenity centres. In Lithuania and Latvia, this claim is less viable since there is no parallel collection of reusable textiles by charities/commercial collectors in civic amenity centres. It may be the case that citizens deliver their reusable textiles elsewhere, but it may also be that the share of reusable textiles is not high enough to justify detailed sorting or collaboration with second-hand organisations/wholesalers.

Figure 4.9: Treatment of separately collected textiles by country and collector type (2018)



c) Lithuania



The finding that 97% of textiles collected by waste companies is striking and brings into question why the waste companies carry out this collection at all. In Lithuania, it is partly a result of the use of MBT plants to process mixed waste and textiles tend to clog up the machinery in these plants. In Estonia, it is a legal requirement that they carry out this collection and municipal waste companies in the other two countries may also be looking towards the 2025 EU requirement for separate textile waste collection (see Policy section) when establishing separate collection.

A strong argument made by waste companies is that it doesn't make sense for them to form partnerships with recycling companies or initiate their own recycling innovations until separate collection has been firmly established and they have gained a good understanding of the quality of textile products that they receive, and the fibre types they contain. One Regional Waste Management centre in Lithuania notes that this period is a sensitive one for them with respect to communication with citizens: if citizens are made aware that the textiles that they deliver to bring banks set up by waste companies are landfilled or incinerated, they may stop delivering these. Regaining their confidence later when recycling systems have been set up may be challenging.

Certainly, domestic recycling options seem to be extremely limited, particularly in Estonia and Latvia. In these two countries, a total of just 600 kg of separately collected textiles by all actors were recycled in 2018. In Lithuania, the figure was higher but still insignificant at just 34 tonnes.

Domestic reuse is more prevalent and represented 21% of all textiles collected by commercial and charitable collectors across the three countries (see Figure 4.9). The figure in Latvia was highest at 67% of textiles collected.

An important issue to note here is that in Lithuania, the largest collector of textiles has close connections to a wholesaler to which it passes all its collected textiles. The wholesaler also imports unsorted used textiles from abroad which dwarf the quantities collected domestically. A large part of the textiles processed by this

company are reused in Lithuania (see Chapter 4.5) but it has not been possible to determine what share of the textiles collected by the company domestically are reused locally. Thus, over 85% of textiles collected by charitable/commercial collectors are identified simply as being sold/passed on to wholesalers (see Figure 4.9 c).

No less than 88% of domestic reuse of textiles collected in Latvia comprises donations rather than resale. This is almost entirely carried out by a single charity whose motivation for textile collection is to assist marginalised groups with clothing donations. The situation is the opposite in Estonia where 86% of reuse is via resale in second-hand shops, in part to raise funds for charitable activities but also for business development and profit.

More detailed descriptions of treatment are described in the individual countries below.

4.3.2 Treatment of separately collected textiles in Estonia

Of the 4,870 tonnes of textiles separately collected in 2018, 14% were reused locally (12% resell in second-hand stores and 2% direct donations), 1% sold to a local wholesaler, 36% were exported abroad for sorting or direct reuse and recycling and just under half (49%) was landfilled or incinerated in Estonia (see Figure 4.9 a). Three quarters of the landfilled textiles comprised textiles collected by waste companies that service civic amenity centres.

All the used textiles collected by charities and private collectors are sorted in Estonia into different categories according to their quality (except one smaller private collector who sends all collected textiles to their sorting facility outside Estonia). Charities and private collectors mainly resell or donate collected used textiles for reuse in Estonia. The higher quality garments are sold in local second-hand shops. Clothes, which are in good condition but are not sold at the shops are donated to smaller local charities, for example churches, or sent to people in need around the country. 584 tonnes are sold in shops and 97 tonnes donated within Estonia. Less than 1% of all collected textiles are sold to wholesalers.

36% of used textiles collected by responding charities and private collectors are exported for reuse (1,065 tonnes) and recycling (596 tonnes) abroad. Export destinations for reuse include various countries in Africa and Pakistan. A commercial collector sends a significant amount of their collected low-quality second-hand clothes for reuse and recycling in Pakistan. This company has a long history of exporting used textiles both for reuse and recycling abroad. Over the course of recent years, they have been able to add new sorting categories for recycling and thus keep the quantity of used textiles sent to landfills low.

806 tonnes of exported used textiles, were collected by a further charity which did not provide the data regarding their operations. Based on internet research and expert opinions, we can assume that the majority these used textiles are exported to Africa for reuse. The shares which are reused or recycled remain unknown.

604 tonnes of the collected used textiles by charities and private collectors were treated as waste and were either landfilled or incinerated in Estonia³³. There are no

33. This amount may include also other types of waste such as packaging, etc. since it is handed over to waste management companies as mixed municipal waste.

textile recycling facilities in Estonia. In general, the survey respondents identified a critical need for a local recycling options for textiles which cannot be sold or donated. The biggest charity collector conducted a thorough investigation in 2018 in finding markets abroad for the textiles that they cannot resell or donate locally. The result was that the interest in these garments was very limited since the used garment markets are saturated and the quality of locally collected and pre-sorted textiles in Estonia was economically uninteresting for operators abroad. This charity has more recently developed a collaboration with an international recycler.

Most collectors discard low quality textiles as mixed municipal waste and pay according to the pricelist of waste management company which provides this service. Commercial and charitable collectors are concerned about the coming mandatory separate collection of textiles waste from 2025. All the bigger charities are concerned that as a result, the share of low-quality textiles will increase in their collections thus further undermining the economic viability of their collection activities.

As described in the overview, 100% of used textiles collected at civic amenity sites by waste companies are sent to either landfill or incineration. Any other treatment of textile waste is not feasible for the waste management companies at the moment because 1) there are no recycling facilities in Estonia and 2) it is not financially feasible to invest in their own recycling facilities due to lack of market for recycled products.

According to one civic amenity site representative, the number of textiles they receive yearly is very low (7 tonnes in a year). The textiles are usually already mouldy or dirty and are not feasible for reuse and therefore are considered as mixed household waste. From the civic amenity site, they are transported further to other sites for landfilling or to incineration facility.

4.3.3 Treatment of separately collected textiles in Latvia

Of the 530 tonnes textiles separately collected in Latvia in 2018, just over half was reused within Latvia (45% donated, 6% sold in 2nd hand shops), 27% were exported, and the remaining 23% were landfilled or incinerated (see Figure 4.9 b). Of the seven collectors who provided data, three donated part of their collected textiles, one sells them in shops, and two export all their collection for sorting and further processing abroad. Only charities sort collected items locally.

A very small amount of the collected used clothing and garments (approximately 600 kg) are recycled. This is the case for the largest charitable collector (collecting 300 tonnes a year). The charity cooperates with small brands that upcycle/redesign non-reusable textiles into new products. Examples include social enterprise Lude that make rags from jersey materials, including T-shirts that are donated in large quantities, and sustainable fashion brand Zile that makes female clothing from used jeans and cotton shirts. Another charity also reported a local community initiative in Vilani that creates carpets from non-reusable textiles donated to the charity, but this is again not a large-scale activity. Although, these initiatives represent very small quantities compared to total generation of textiles waste they can potentially inspire other similar initiatives and a growth in such redesign projects.

Several collectors have investigated further opportunities for recycling of the collected textiles, but, as there is currently no recycling company in Latvia, these

efforts lead to no results. All interviewees saw the lack of a local textile recycling company or a system for textile recycling as a key obstacle. One collector has contacted recycling companies elsewhere in Europe without success; partially because the quantities of waste textiles that they collected annually were too small to be of interest to the larger recycling companies. Several collectors reported an intention to look into these possibilities in the near future, in view of the coming EU requirements for the collection and recycling/preparation for reuse of textile waste.

As already described, only two waste management companies currently provide opportunities for households to discard their textile waste in dedicated containers. However, 100% of these textiles are currently sent to incineration or landfill due to lack of recycling facilities in Latvia.

4.3.4 Treatment of separately collected textiles in Lithuania

Of the 1,880³⁴ tonnes, textiles separately collected in Lithuania in 2018, 57% was passed/sold onwards to sorters/wholesalers within the country, 11,5% were exported, just 1% was reused directly domestically, 2% recycled domestically and the remaining 29% was landfilled or incinerated (see Figure 4.9 c). This almost completely comprises textiles separately collected by waste companies.

It is mainly the commercial collector that collects half of all used textiles collected in Lithuania, who then passes these on to an affiliated sorting/wholesale company. Several charities also pass on the majority of their collection quantities to sorters/wholesalers. Some of these textiles may be reused or recycled within Lithuania after sorting and some may also be incinerated/landfilled locally. The wholesalers sort textiles for the following markets depending on quality:

- Reuse in the local market
- Export for reuse (mostly to the Eastern European countries, Africa and Pakistan)
- Downcycling into rugs (one Lithuanian company produces rugs from locally collected and imported post-consumer and industrial textiles)
- Production of non-woven products
- Incineration or landfill

The main sorter performing sorting of domestically collected textile estimates that 23% of the sorted textiles are exported for reuse, 16% recycled either locally or abroad and 50% is incinerated (landfilled – small portion) in Lithuania. The imported used textiles tend to be of higher quality than the streams, collected by RWMCs, municipalities or charity organisations. Therefore, attempts to cooperate on handling such textiles become a major challenge for commercial collectors and sorters.

34. Note that this figure isn't directly comparable to figures for collection in Estonia and Latvia as the figure excludes shoes and bags and other non-textiles that are collected along with the textiles. This is not the case in the other two countries. The figure with shoes and bags is 2055 tonnes.

Box 3: Textile recycling in Lithuania

Three companies have been identified as carrying out textile recycling activities.

One company produces nonwoven garments and recycled fibres from industrial textile waste. It produces these fibres from cotton, wool, linen, hemp, polyester, and other waste. The company manufactures a considerable amount from textile waste in order to reduce environmental impacts and provide Eco friendly solutions to customers.

A further company produces polymer granulates and compounds as well as final products of plastic. In 2018 a production line was implemented for processing of textile and other PET waste into crystalline PET re-granulate with properties optimised for the food industry.

A third company produces wipes from cotton and wool, linen and synthetic materials (acrylic, PP, PA, PES). The wiper company also recycles pre-consumer industrial textile waste. These cutting wastes represent roughly 10% of the company's inputs. The output products are sold by in Lithuania and on export markets.

With respect to post-consumer textiles, the latter two companies prefer to import or buy from Lithuanian sorters rather than use domestically collected textiles because these can supply materials prepared according to the companies' requirements for raw-materials for production.

The quantities of used textiles collected by the nine active charities and social enterprises are mostly quite small with the exception of one charity, which collects about 140 tonnes of used textiles per year. This large charity directly donates about two-thirds of collected textile for charity receivers, one-third of its textiles is donated to a sorter for detailed sorting (see above) and a small share of the remainder for recycling. The same model is followed by three other small charitable collectors.

Just two of the charities and the single social enterprise directly pass on their collected textiles for domestic reuse; either via resale or through donations of clothing to people in social or economic need. These quantities are small: just 0.6 tonnes were sold second-hand within the country in 2018 and 17 tonnes were donated. The social enterprise also runs an educational centre focusing on educating citizens on repairs and upcycling and an exchange service for used clothing. Citizens can bring their used items directly to the centre, and can donate those in good condition in exchange for a discount to buy other used items from the second-hand shop that is also present in the centre.

A relatively small amount (34 tonnes) of separately collected textiles were recycled in Lithuania. There are three textile waste recycling companies in Lithuania (see Box 3) but these prefer to source their input waste from wholesalers rather than domestic collectors (see Chapter 4.6).

87% (540 tonnes) of the 616 tonnes of textiles separately collected by the waste companies are landfilled or incinerated³⁵. Thus, the separate collection by municipal

35. This amount may include also other types of waste such as packaging etc., since it is handed over to waste management companies as mixed municipal waste.

waste companies is largely a waste of resources under current treatment operations, but this situation is likely to improve in the future, although no concrete plans have as yet been developed. The main reasons for the lack of circularity of these textiles are reported by regional waste management centres (RWMC) as: a lack of textile waste management systems, oriented only to collection; a lack of human and economic resources in order to perform the textile waste sorting, and; the small amounts of textile waste collected. A further challenge is that sorters/wholesalers of imported used textiles can provide the recycling companies with higher quality and more consistent fractions of waste textiles for specific recycling processes.

One RWMC has set up a reuse centre to attempt to solve these issues. The reuse centre has set up C2C exchange centres in the 19 civic amenity centres run by the RWMC. Textiles are indicated as one of the priority categories of goods for exchange between people in these exchange sites. In addition, the RWMC has recently invested in 36 textile collection containers. The collected textiles are planned to be sorted locally with good quality textiles suitable for reuse to be disinfected, repaired and sold in shops run by the RWMC.

The sorting and repair centre will also play a social role through the employment of disabled and other socially vulnerable persons, and through donation of reusable textiles and other goods to charity organisations. The sorting centre will decrease the quantity of textiles sent to landfill. This RWMC is as such piloting a scheme that will:

- Promote second hand, repair, sharing and other textile reuse practices.
- Increase separate collection of used textiles from households
- Encourage collaboration between municipalities, municipal waste companies and reuse/recycling organisations to ensure markets for reusing/recycling textile.

Other regions have also planned to set up similar reuse centres inspired by these activities.

4.4 Challenges identified by interviewed used textile collectors

The following challenges were identified by collectors during interviews:

- **Low quality of collected textiles:** The quality of clothing discarded in bring-banks is low and reducing further. Only a small share can be reused and a large share is only fit for recycling or discarding as waste. This results in economic pressure on the charities, since their income decreases while sorting and waste management costs increase (€50 Euro per container). Charities suspect that people are using charity collection systems to discard their low-quality textiles, instead of throwing them in the mixed waste for which they pay by weight. Fast fashion may also be a cause of the increasing amount of low-quality used textiles coming to charities.
- **Concern for reducing quality in the future:** Commercial and charitable collectors are concerned that the coming mandatory separate collection of textiles waste from 2025 will increase the share of low-quality textiles in their collections and further undermine the economic viability of their collection activities.

- **Supply does not fit demand:** A number of charities experience that the supply does not fit the domestic demand in terms of product types. Most of the donated used textiles are children and women's clothing. There is a lack of men's clothing and warm outerwear. Also, there is a lack of sheets and duvet covers
- **Hard to compete with imported used textiles:** domestically collected textiles cannot compete in quality with imported used textiles from north-western Europe. As a result, wholesalers do not prioritise locally collected textiles and domestic markets for the reusable fractions are generally hard to find.
- **Little external interest in unsold locally collected textiles.** Reusable textiles that aren't sold during the typical four-week sales periods in second-hand retailers, are challenged in finding markets in other countries. Markets outside the Baltic countries are becoming saturated and are effectively closed to all but high-quality reusable textiles. The quality of locally collected and pre-sorted textiles from the Baltic countries is economically uninteresting for operators abroad.
- **Lack of storage space:** Smaller charitable organizations lack space for storage of used textiles that are out of season. People tend to donate after-season clothes, while the charities need the clothes, which are relevant for the present season. As a result, some charities are forced to reject some donations that don't fit current needs.
- **Overloaded containers** can occur due to irregular flows of donations and unpredictability in when bring-banks need to be emptied. This leads to citizen complaints and dissatisfaction with collection services and can also lead to contamination by moisture
- **Contamination by non-textile waste:** Collectors experience that textiles collected via bring-banks are often contaminated with non-textile waste and/or bulky waste is piled up against the container inhibiting emptying.
- **Strict regulative requirements** in Lithuania, increase the costs of preparation for reuse and are not stimulating the collection and treatment of used textiles. Organisations face legal barriers in collection, strict requirements for disinfection of second-hand clothes prior to distribution, and bans on second-hand clothing for toddlers that limit the economic viability and growth of collection. This barrier is not relevant in Estonia or Latvia.
- **Lack of available recycling opportunities** in the Baltic region and in particular in Estonia and Latvia. As a result, a large amount of collected textiles are discarded as waste. Moreover, interest for Baltic textiles waste from recyclers in other countries is limited since markets are relatively saturated and the quality and volume of locally collected and pre-sorted textiles in the Baltics is economically uninteresting for operators abroad. There is a critical need for investments in local recycling facilities.
- **Hard to compete with imported recyclable textiles waste:** The non-reusable fractions emerging from local collection and sorting by charities cannot compete for existing recycling capacity with the non-reusable fractions from large Baltic sorting plants. These latter are of higher quality and consistency and better fit demand for specific recycling processes.
- **Lack of economic viability for waste companies:** Waste management companies need to make investments both in the necessary collection infrastructure, and also in sorting facilities to set aside materials for appropriate recycling. If viable markets do not exist for the sorted fractions then there will be limited return on these investments.

- **Missing financial support from government:** the limited economic viability of used textile collection in the Baltic countries is as yet not compensated for by financial support from government

4.5 Textiles in mixed household waste

The textiles that are disposed of in mixed household waste have been calculated using two methods:

1. A **mass balance method** where it is assumed that the maximum quantity of textiles discarded in mixed household waste is the annual consumption of both new and used textiles as estimated in Chapter 4.1 minus the annual volume of separately collected textiles as estimated in Chapter 4.2.
2. A **method using existing picking analyses of waste sample** from mixed household waste streams to calculate average shares (by weight) of textiles in mixed household waste streams³⁶. This is then multiplied by total quantities of *mixed* household waste in 2018 to provide a total volume of textiles. Quantities of mixed municipal waste collected in 2018 was available in Estonia and Lithuania. In Latvia, total volumes of mixed municipal waste were estimated from Eurostat municipal waste data³⁷. This latter approach includes some potential error³⁸.

Figure 4.10 compares the results of the two methods and compares these to annual consumption figures per capita. It can be seen that the two methods only produce very similar results for Estonia. For Latvia and Lithuania, the picking analysis method produces annual quantities of textiles in mixed waste exceed the quantities of textiles placed on the market by 39% and 101% respectively.

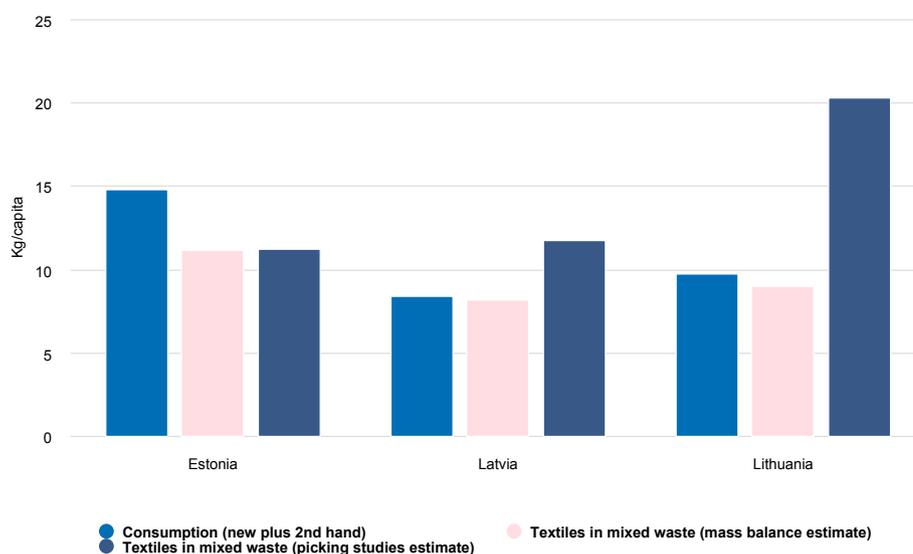
Both methodologies include potential errors. The simple mass balance approach assumes a steady state e.g. that the inputs (purchased textiles) to the mass balance are constant from year to year. This assumption is necessary because clothing discarded in 2018 may have been purchased in any previous year. In reality, consumption of clothing per person has been increasing across the Baltic States. Moreover, it ignores the potential for changes in stock in households from year to year e.g. an increasing or decreasing numbers of clothing items per person. Finally, actual consumption of textiles may be higher than our estimates due to internet purchases or purchases via illicit sources (see Section 4.1.1 earlier).

36. The average shares of textiles in mixed municipal waste as derived from picking studies were Estonia, 5%, Lithuania, 7.5% and Latvia, 4.8%.

37. Mixed municipal waste volumes have been assumed to be equivalent to quantities landfilled and incinerated with or without energy recovery. The data has been derived from Eurostat's *Municipal waste by waste management operations [env_wasmun]* dataset.

38. Landfilled and incinerated municipal waste are not necessarily exactly equivalent to quantities of collected mixed waste. Some separately collected municipal waste may also end in incineration and/or landfill. We have already seen that this is the case for textiles and may also be true for a share of some other separately collected fractions such as plastics. Thus, the Eurostat based method may overestimate quantities of mixed waste and thus overestimate quantities of textiles in mixed waste.

Figure 4.10: estimated quantities of textiles discarded in mixed household waste streams (2018) using two alternative methods



Errors in the picking analysis approach, meanwhile, can be caused by errors in the *share* of textiles in mixed waste caused by 1) the inclusion of additional products such as shoes, leather jackets, bags, etc. in the 'textiles' category in picking studies, 2) partial absorption of textiles in mixed waste picking samples of moisture in kitchen waste significantly increasing the apparent share of textiles by weight 3) limited numbers and non-representative samples used in picking analysis that cause inaccuracies when extrapolated to the whole country. They can also be caused by the methodology we have used in Latvia and Lithuania for estimating total quantities of mixed waste as described in the footnote on the previous page.

We believe that the actual figures for textiles in mixed waste lie somewhere between the two estimates. Deeper study is needed to firmly establish the quantities of textiles in mixed municipal waste.

Under any circumstances, it is clear that there are significant quantities of textiles in mixed household waste streams that are subsequently sent for landfill or incineration and thus have lost their potential to be reused and recycled. These quantities represent up to 67% of all textiles consumed in Estonia, 85% of textiles consumed in Lithuania and 95% of textiles consumed in Latvia.

Table 4.6 gives estimates of the relative share of textiles in mixed waste that end their days in either landfill or incineration with energy recovery. These shares are based on Eurostat's data for municipal waste treatment³⁹, assuming that no textiles in *mixed waste streams* are recycled or composted/digested.

39. Eurostat dataset *Municipal waste by waste management operations [env_wasmun]*.

Table 4.6: The estimated final fate of textiles discarded in mixed household waste streams (2018)

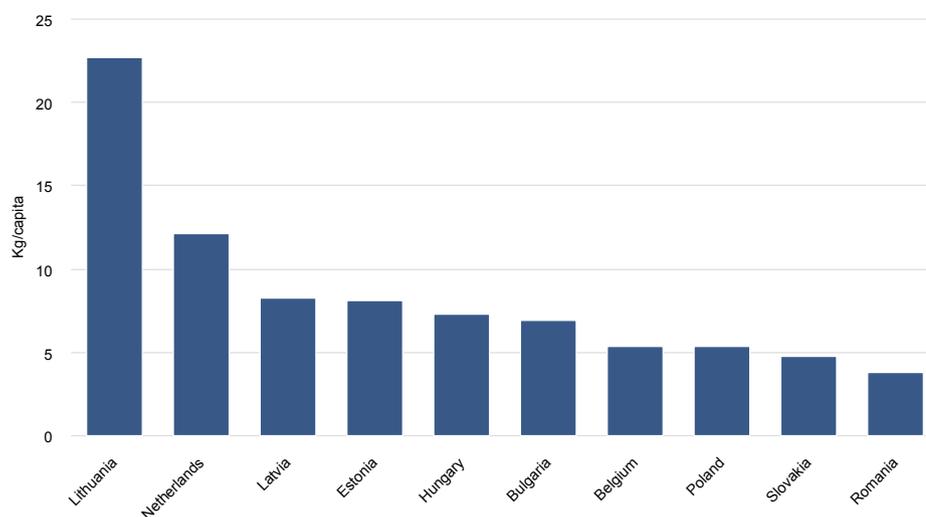
	Landfill	Incineration
Estonia	34%	66%
Latvia	97%	3%
Lithuania	66%	34%

4.6 The wholesale and sorting sector

4.6.1 Imports of used textiles

All three Baltic States are important importers of used textiles. When viewed in total volumes only Lithuania lies within the top 10 importers of used textiles (CN code 6309) and rags (CN code 6310) in Europe. Lithuania lies at no. 7 with imports less than a third of those of the top two – the Netherlands and Poland – which exceed 200,000 tonnes per year. However, when viewed in terms of kg per capita of population, all three Baltic States lie in Europe's top five importers (see Figure 4.11).

Figure 4.11 Top ten European importers of used textiles⁴⁰ and rags⁴¹ in kg/capita (2018)



Data source: UN Comtrade <https://comtrade.un.org/data>

40. CN Code 6309 Worn Clothing and Other Worn Textile Articles.

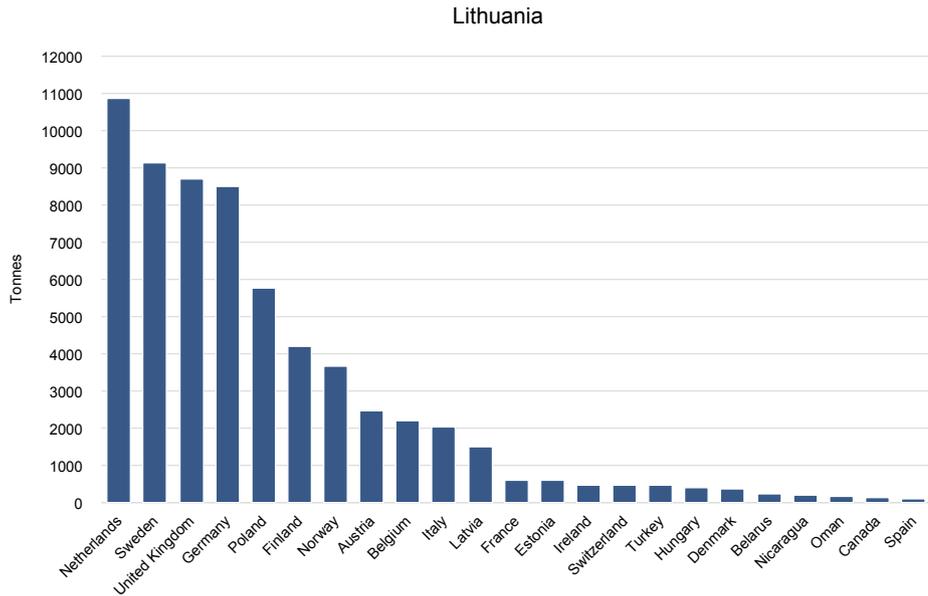
41. CN Code 6310 Used or new rags, scrap twine, cordage, rope and cables and worn out articles of twine, cordage, rope or cables, of textile materials.

As with the other leading importers, used textiles are primarily imported by wholesalers for detailed sorting into over 100 reusable fractions for subsequent reuse either domestically or on global markets following re-export. Non-reusable fractions may be sent on to domestic or global recycling markets, or disposed of in the sorting country, as mapped in more detail below. A share of imported used textiles also represent fully sorted fractions imported for direct reuse (or recycling) within the country

However, it is important to note that the distinction between types of imported textiles grouped under codes of used textiles (6309) and rags (6310) are not clear-cut and may often depend on norms for the use of these codes in the export or import country. While imported sorted textile fractions intended for direct reuse in the import country are almost certainly categorised under code 6309, unsorted 'original' or original that has been pre-sorted by skimming off top quality for selling in the collection country, can be grouped either under code 6309 or 6310⁴². Therefore, these codes are not useful in distinguishing between sorted and unsorted textiles and we have purposefully not distinguished between these in Figure 4.11. Part of 6310 also represents ropes and cords made of new textile materials, but this is thought to be a small part of the total.

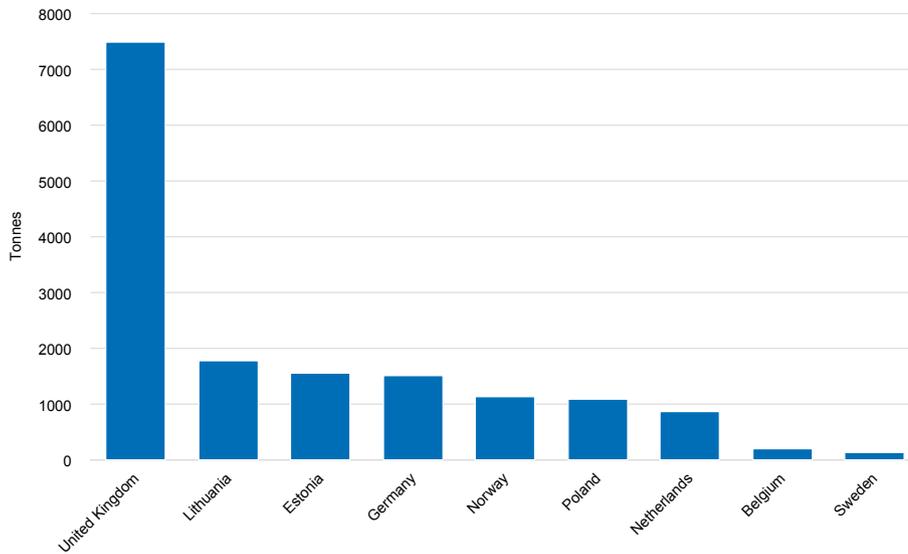
The Baltic States import a total of over 90,000 tonnes of used textiles (and rags). If trade in used textiles *between* the Baltic States is omitted this figure is reduced to just under 85,000 tonnes.

Figure 4.12: Sources of all imports (over 100 tonnes) of used textiles and rags to the Baltic States (2018)

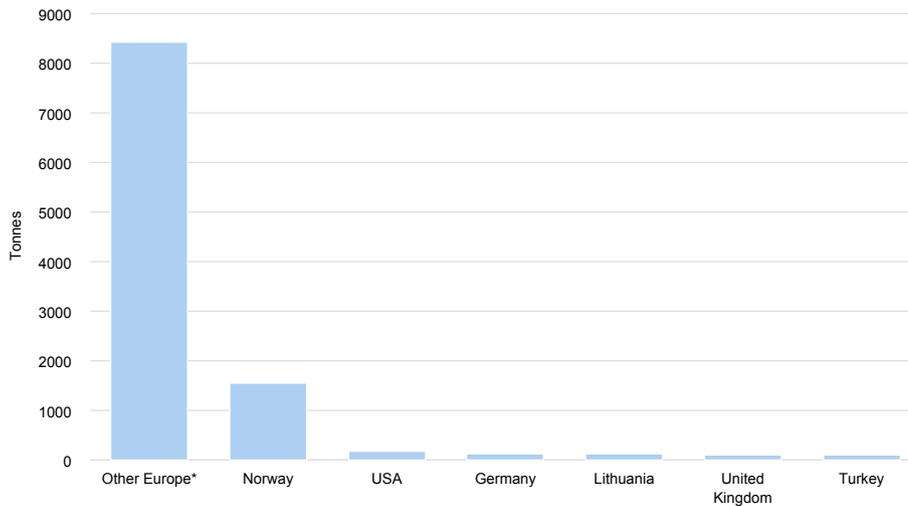


42. Watson et al, (2016).

Latvia



Estonia



** The majority of imports to Estonia could not be differentiated by the reporting agency by country*

Data source: UN Comtrade <https://comtrade.un.org/data>

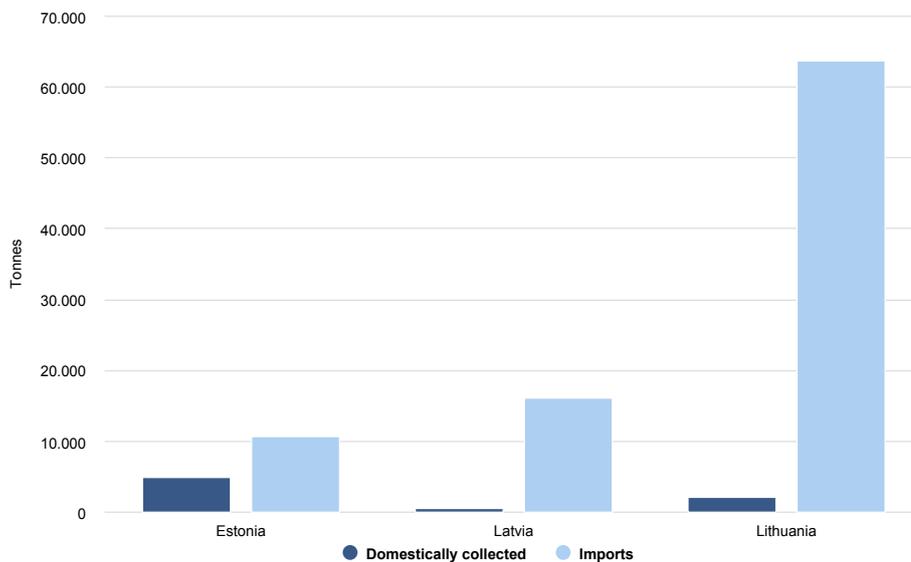
The vast majority of imported used textiles come from elsewhere in the EU and EFTA countries. Lithuania imports come from a range of European countries with five countries exporting over 5000 tonnes each (see Figure 4.12). Latvian imports are dominated by imports from the UK. It remains to be seen how these imports will be affected by the departure of the UK from the European Union. With respect to Estonia, the UN Comtrade data does distinguish between imports from a range of European countries (see Figure 4.12). According to the wholesalers interviewed in this

project much of the European imports come from the Nordic countries and the UK. Of the 84,850 tonnes imported from outside the Baltics, at least⁴³ 20,250 tonnes, or 24%, were imported from the Nordic countries. Thus, the Nordic region is an important source of the Baltic States' imported used textiles. Similarly, the 20,250 tonnes imported from the Nordic countries represented 23% of all textiles exported from the Nordic countries in 2018. As such the Baltic countries represent an important element of the circular economy for textiles purchased and consumed in the Nordics.

Quantities of imported used textiles far exceed domestic collection of used textiles. This is especially true in Lithuania and Latvia (see Figure 4.13).

As already reported in Chapter 4.5, imports of used textiles from elsewhere currently have a potentially negative effect on domestic circularity, since the local markets for reusable textiles are dominated by the higher quality imports. On the other hand, imports of used textiles have, at least in Lithuania, created the conditions for establishment of some local textile recycling businesses (see Box 3 earlier). These currently prioritise imported textiles due to higher consistency in the supply of there and not on locally collected non-reusable textiles.

Figure 4.13: Comparison of quantities of used textiles that are collected within the Baltic States and the quantities of used textiles that were imported (2018)



4.6.2 Handling and treatment of imported textiles

It was more difficult obtaining data from the import and wholesale sector than from domestic collectors of textiles. The worst case by far was in Latvia where actors representing just 20% of total imports shared information. In Lithuania, actors

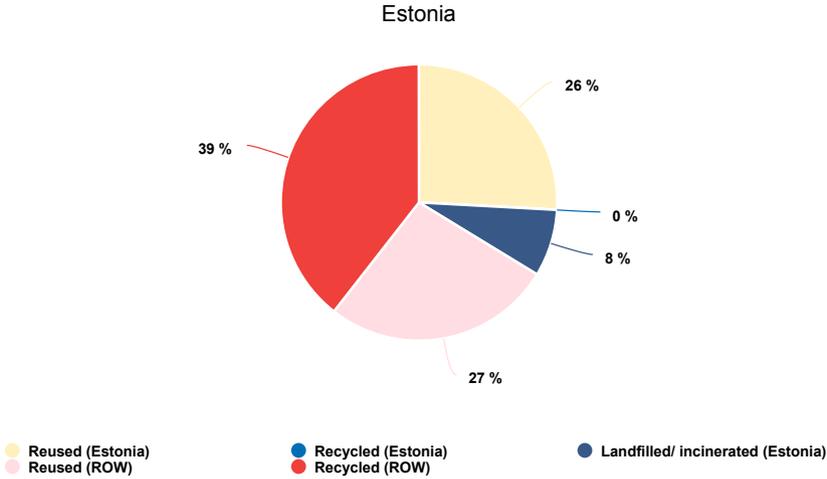
43. It could be more than this since we don't know the quantities of Danish, Finnish and Swedish imports to Estonia.

representing two thirds of the sector responded to the survey and in Estonia the figure was as high as 85%. As a result, there is a large degree of uncertainty when using the findings for Latvia to represent the sector as a whole. This was partially addressed through ground-truthing the results against data for exports of used textiles downloaded from UN Comtrade data, and through applying knowledge of the activities of wholesale sector in other countries. Adjustments to Latvian data were then made as necessary⁴⁴.

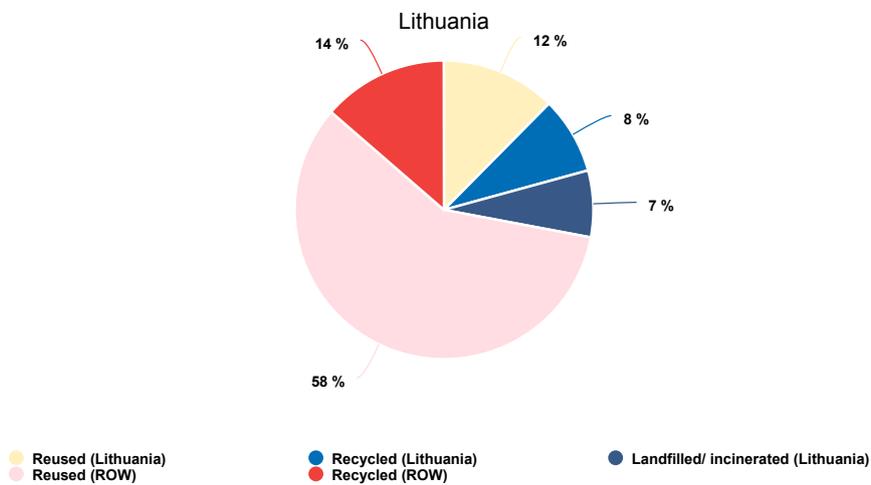
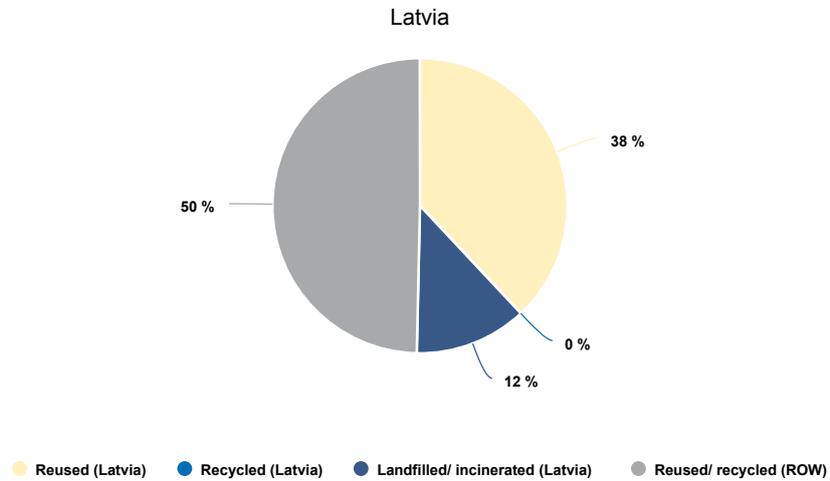
The sector is diverse in all three countries with a range of both large and small private and charitable actors that import used clothing. A few of these also collect used textiles domestically. In Estonia, there are also examples of small charities who focus on domestic collection but also import sorted second-hand textiles for direct sale and other businesses that import already sorted textiles for second-hand retail. However, the vast majority of imported textiles to the Baltic countries is original or partially sorted used textiles that are imported for detailed sorting in the Baltics.

Figure 4.14 presents the estimated fate of imported used textiles to the three countries. This fate differs significantly between countries. The textiles imported to Lithuania enjoy a high level of reuse (71%) compared to the textiles imported to Estonia (53%). Exports for reuse and recycling could not be distinguished from one another in the Latvian study.

Figure 4.14: Estimated fate of used textiles imported to the Baltic States in 2018



44. In order to ensure that the total exports of used textiles fitted with the reported trade data (5816 tonnes) we assumed that the non-reporting importers send 1402 tonnes to landfill/incineration. This is a very rough approach but resulted in an assumed 12% of total imports ending in waste which seems more realistic than the 2% reported by responding importers in Latvia. See Latvian country report for more details.



Note: ROW means Rest of World

Much (83%) of the reuse of textiles sorted in Lithuanian takes place in other countries, whereas in Estonia half the reuse occurs locally. These differences are perhaps due to both the types of operators and the volumes of imports. In Lithuania, wholesale activities are dominated by a single actor who is responsible for 60% of all imports. This actor has a well-established set of buyers and partners across the globe. Furthermore, imports to Lithuania are far greater than imports to the other two countries and local reuse markets can only absorb so much. The volume of reuse on local markets is in fact very similar between countries, ranging from 2.4 kg/cap in Estonia to 2.7 kg/cap in Lithuania (see Table 4.2 earlier in this report). When local markets are saturated, the remainder must necessarily be sold for reuse abroad.

A further marked difference between the countries is where recycling occurs. There is almost no domestic recycling in Estonia and Latvia. Lithuania on the other hand has a healthy domestic recycling industry accounting for 8% of all imported textiles (see Box 3 earlier for more info).

The *reported* shares of imported textiles going to waste are low, compared to textiles collected domestically as reported in Chapter 4.3.1. This is the result of a number of factors: 1) the higher quality of imported textiles 2) wholesalers' intimate knowledge and high access to global markets for reuse and recycling compared to local collectors 3) the commercial nature of wholesale which forces wholesalers to find markets wherever possible in order to avoid waste management costs. However, it could also partially be the case that the wholesalers do not have full knowledge or have not been entirely open with respect to the shares of imported textiles that end up as waste.

All non-reusable or non-recyclable waste resulting from sorting processes is landfilled or incinerated within the Baltic region.

All sorting is carried out by hand by highly trained sorting staff. Automated sorting is not possible for reuse markets and it takes several months to train a sorter to sort rapidly into reuse fractions according to garment type, size, style and quality. Most sorting facilities sort into well over 100 different fractions suitable for a wide range of markets. The labour-intensive nature of sorting is the main reason why sorting is outsourced from the Nordic countries and other northern and western European countries to the Baltics and elsewhere in Eastern Europe where labour costs are lower.

Sorting for recycling on the other hand can be automated and technologies are currently under development in several European countries, notably Sweden (SIPTex), Finland (LSJH) and the Netherlands (FIBERSORT)⁴⁵. There are currently no automated sorting technologies under development or active in the Baltic States.

Importers of used textiles to Lithuania and second-hand retailers face significant challenges compared to the other two countries. Firstly, since 2001 it has been a requirement⁴⁶ that all second-hand goods must be clean, harmless and safe for the consumer. Each consignment of second-hand textile and footwear must be accompanied by a document or tag on the consignment note, certifying that the consignment has undergone a relatively costly chemical treatment. Documenting the consignment can be challenging for some actors, because of the high treatment costs.

Moreover, it is illegal to sell second-hand children's clothing for toddlers up to 3 years old in Lithuania as well as second hand footwear for children of all ages⁴⁷.

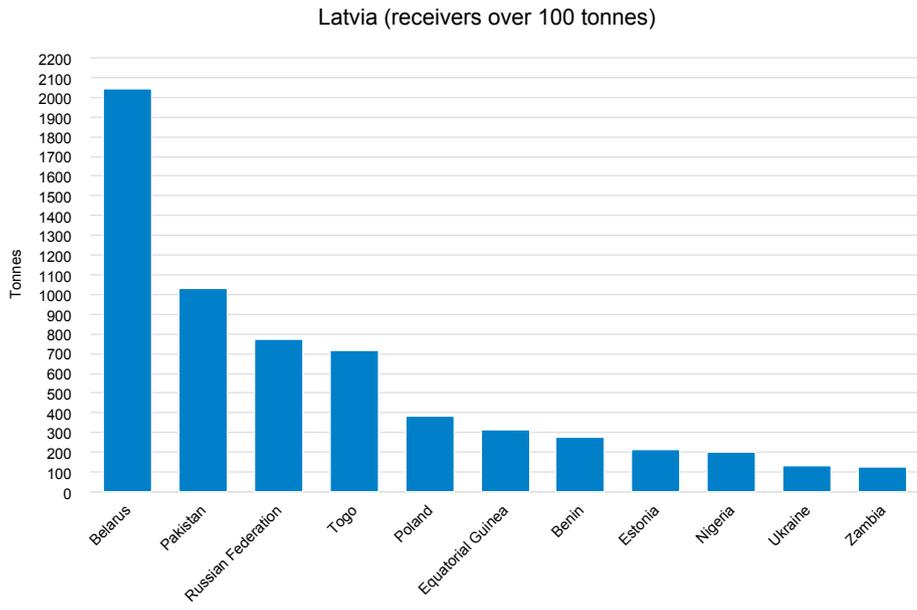
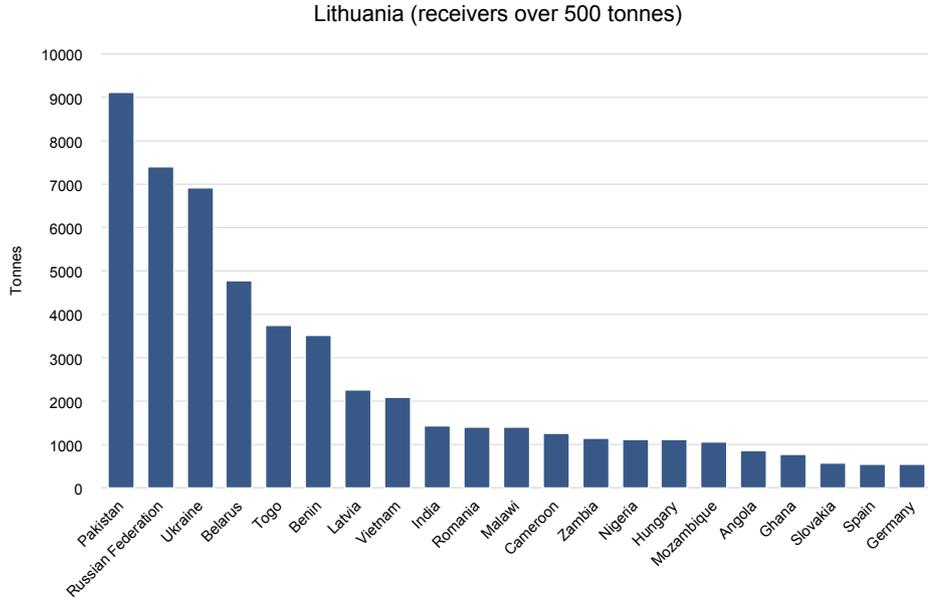
Considering the large share of these types of discarded textiles, the state position to prohibit the trade of these clothes is a challenge to the implementation of circular economy principles.

45. For an overview of these technologies see Watson et al (2020b).

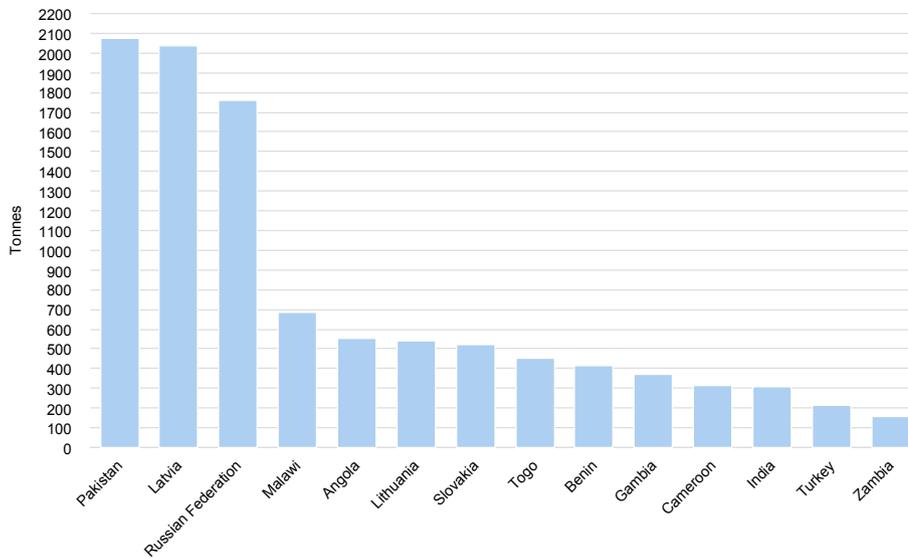
46. The Retail Trade Rules, approved by the Resolution No. 697 of the Prime minister and the Minister of Economy of the Republic of Lithuania of 11 June 2001 (<https://e-seimas.lrs.lt/rs/legalact/TAD/TAIS.149527/>).

47. The Order On Trade in Second Hand Goods, approved by the Minister of Health of the Republic of Lithuania (2001).

Figure 4.15: Top receiving countries for exports of sorted textiles from the Baltic States (2018)



Estonia (receivers over 100 tonnes)



Data source: UN Comtrade <https://comtrade.un.org/data>

The wholesalers report that sorted textiles are re-exported to a wide range of countries for reuse and recycling. Figure 4.15 provides an overview of receiving countries from the Baltic States according to UN Comtrade data.

According to UN Comtrade data a total of 71,500 tonnes of used textiles were exported from the region in 2018 (e.g. excluding exchanges between the Baltic countries). The majority is exported outside the EU.

The biggest single receiver from the region is Pakistan that received 12,200 tonnes of used textiles or 17% of all exports from the region. The ex-Soviet countries received a further 24,200 tonnes or 34% of total exports. Nations in the African continent received 20,400 tonnes or 29% of the total.

5. Barriers to and opportunities for a circular economy

This section draws out some key messages and conclusions from Chapter 4. These define the challenges and opportunities for the region and for individual sectors. These challenges and opportunities then form the basis for discussions on existing and potential policy interventions.

5.1 Summary of challenges at each link in the used textile value chain

Consumption (new and used)

Consumption patterns in the Baltic States are relatively sustainable compared to their Nordic counterparts, and this may be the continuation of a long tradition of a 'make do and mend' culture where maximum value is drawn out of clothing. However, consumption patterns are changing rapidly.

Consumption of new clothing in 2018 was relatively low in Latvia (6.1 kg/capita) and Lithuania (7.0 kg/capita) compared to the Nordics and other neighbouring countries. Thus, the demand of these countries on raw resources related to clothing production is significantly lower. Consumption is, however, growing rapidly: increasing by 25% in Latvia and 37% in Lithuania in just one year (2017 to 2018). In Estonia, where consumption is at a similar level to the Nordics at 12.4 kg/capita, growth rates were lower at 9%.

Clothing is used more intensely before being discarded. This can be inferred from the relatively low purchase of new textiles (in Lithuania and Latvia), as described above, which suggests that each piece of clothing is used for longer and/or more actively in a household. It is also inferred from reports from collectors of used textiles of the relatively worn out condition of clothing and other used textiles collected from households in the Baltic States compared to imports of second-hand from other countries. Using and repairing clothing until it no longer has technical life left is a key element of sustainable consumption.

Second-hand textiles form a significant part of overall consumption. Second-hand purchases in the Baltic States range from 2.4 kg/capita in Estonia to 2.7 kg/capita in Lithuania representing 29% of total consumption in Latvia and Lithuania and 16% in Estonia in 2018. The share of second-hand is much higher than in the Nordic countries.

Moreover, this doesn't even take account of direct exchanges between citizens either informally (friends and family) or through flea-markets and online exchange sites. In the Baltic region there is a strong tradition to hand over clothes to next generations or swap them within family and friend networks, while anonymous donations via bring banks is a relatively new behaviour and practiced mainly in big cities and places

where the collection infrastructure is available and easily accessible.

The majority of the second-hand sales in the Baltics is supplied by imported used textiles rather than textiles recirculated within the country. Only in Estonia is the internal recirculation significant at 22% of total. However, charity organizations are expanding their resell activities and new for-profit reuse business models are entering the market. Examples of new business models present in the Baltic region include Emmy (FI), Yaga (EST), Smartswap (EST), Textale (LT), Vinted (LT). With the increasing consumer awareness of reuse of textiles, overall public and political focus on textile circularity and especially fashion industry's growing interest in re-commerce and rental models, it is expected that more innovative business models will enter the market in the future.

In Lithuania, strict regulative requirements present a challenge for second-hand retailers. They must meet strict requirements for disinfection of clothing prior to sale and other conditions that limit the economic viability of second-hand.

Circular consumption

Challenges

- Consumption of new textiles increasing rapidly in Latvia and Lithuania
- Limited reuse of locally collected textiles
- Locally collected textiles have low quality for reuse
- The local markets are saturated with imports
- Limited after-markets abroad for locally collected textiles due to low quality
- Disinfection requirements in Lithuania inhibit reuse

Opportunities

- Consumption levels of new textiles are still significantly lower than in Nordics
- Clothing is used more intensely before being discarded
- Second-hand textiles form a significant part of overall consumption
- There is an emergence of new business models for extending product lifetimes

Collection

Collection rates are low in Latvia and Lithuania compared to the Nordic countries. The quantity of used textiles that are collected from households comprise 11% and 5% of new textiles purchased each year in Lithuania and Latvia respectively. When purchases of second-hand are considered, the collection rates fall further to 8% and 3% respectively. This means that the vast majority of used textiles end in mixed waste.

Consumer convenience and accessible infrastructure need to be strengthened in achieving further increases in collection rates. A consumer study from Latvia shows that consumers do not give away used clothes due to lack of collection sites, especially in rural areas.

Where bring-bank containers do exist they can often be overloaded due to irregular flows of donations and unpredictability in when bring-banks need to be emptied. This leads to citizen complaints and dissatisfaction with collection services and can also lead to contamination by moisture. Moreover, collectors experience that textiles collected via bring-banks are often contaminated with non-textile waste and/or bulky waste inhibiting emptying.

On a positive note, collection has increased over the past year and the existing collectors are expected to expand their collection infrastructure and increase their capacity in the future. Additionally, commercial collectors and brands will become more active in the future in used textile collections. Globally, increasing numbers of brands offer clothes take-back service for consumers, either forming partnerships with local charities, collaborating with professional collectors or building their own services (Hvass & Pedersen, 2019). Currently, only one international brand offers this service on the Baltic market.

The quality and value of textiles collected by all collectors in the Baltic States is generally low, however, and falling and can't compete on quality and condition with imported used textiles. This may in part be a result of the more intensive use of textiles by households before they are donated to charities/commercial collectors and donating clothes that have been purchased already 2nd hand. It may also partially be the result of an increasing tendency to purchase low quality cheap *fast fashion* clothing that several local collectors have referred to during the project consultations.

Partially as a result of low quality, a high share (42%) of separately collected textiles are landfilled or incinerated rather than reused or recycled. It is the waste companies that are responsible for this high figure. 97% of textiles waste separately collected by waste companies are landfilled/incinerated. As such separate collection by waste companies (as required by law in Estonia) currently leads to almost no circularity. Separate collection in itself is not sufficient to ensure circularity, but needs to be supplemented by minimum targets for reuse and recycling and initiatives to ensure this happens.

There is currently very little cooperation between charities/commercial collectors and municipalities and/or municipal waste companies in Latvia or Lithuania. Such cooperation is relatively normal in Nordic countries. Also, in Estonia municipalities are increasingly collaborating with local private and charitable collectors on

collection of textiles in civic amenity centres and subsequent processing. Some Baltic waste companies say that they are using the first period of textile waste collection to determine the composition and quality of delivered textile waste before identifying and developing appropriate reuse and recycling initiatives in partnership with others.

Reducing quality and lack of markets for reusable and non-reusable textiles collected in the Baltic States challenges the economic viability of the collection and sorting of used textiles. Collection is especially challenged in rural areas due to low population density. The economic viability of collection will be challenged even further as the share of non-reusable textiles delivered to bring-banks increases after 2025.

Collection

Challenges

- Low collection rates (in Lithuania and Latvia)
- Undeveloped collection infrastructure, infrequent emptying of containers and contamination by other waste
- Low engagement of municipalities in collection
- Quality and value of textiles collected in the Baltic States is low and falling
- Used textiles collected locally can't compete on quality and condition with imported used textiles
- Lack of reuse and recycling targets for collected textiles
- High share of separate collection is landfilled or incinerated
- No cooperation between charities/commercial collectors and waste companies in Latvia or Lithuania
- Limited economic viability of collection in rural areas
- Missing financial support from governments
- Limited brand and producer responsibility

Opportunities

- Collection has increased in recent years as citizen awareness and opportunities for donations grow
- Existing and new actors (e.g. brands) are expanding their efforts in used textile collection
- Waste companies are beginning to look for partnerships in recycling/reuse

Recycling/upcycling

Very few local recycling options exist in the region. There are almost no companies that recycle textiles in Estonia or Latvia. There are several companies that recycle textiles in Lithuania, but these companies prefer to source their textiles waste from the wholesalers of imported used textiles since these can provide the types of materials that the companies need in a consistent quality and quantity. As a result, although over 3,400 tonnes of textiles are recycled/downcycled in Lithuania, only 34 tonnes (1%) were sourced from domestic collectors of used textiles. The majority of non-reusable textiles collected within Lithuania must be recycled abroad or are incinerated. The same is true in Estonia and Latvia.

After-markets abroad are limited, since markets are saturated and the quality of locally collected and pre-sorted textiles in the Baltics is economically uninteresting for foreign operators. Since the volumes of locally collected textiles are low and markets abroad are saturated, waste management companies lack economic motivation to invest into recycling solutions and build partnerships with local collectors.

However, the Baltic region's role in importing and proximity to wholesale sector provides opportunities for recycling in the region. The wholesale sector in the Baltic States generates 24,000 tonnes of non-reusable textile waste per year. 17,000 tonnes of this is recycled but only 5,000 tonnes are recycled locally. A further 7,000 tonnes of textiles waste are landfilled or incinerated.

The concentration of high quantities of non-reusable textiles of consistent quantity and quality, combined with competitive wage levels in an EU context, and skilled labour, represents an opportunity for the seeding and development of modern automated sorting and recycling facilities for textiles waste in the region, including textiles-to-textiles recycling. Hence there is an opportunity and critical need for investments in local recycling facilities or strategic collaboration with facilities in Nordic countries and abroad.

The Baltic region also has sewing and repair skills, which provides opportunities for upcycling of sorting wastes. Currently upcycling and redesign of non-reusable textiles is happening in (e.g. Lude, Zile, Pārtapis, VelgaCode, Vilani in Latvia; Reet Aus, Kalamaja Printsess in Estonia, or TEXTALE, Upcycled by LT, Šarka 0+0=1, Leaf, Kazirka, Žalia žinutė, Denim Diaries, Yours Again, I Love Recycled in Lithuania) but the activities lack scale. Although, these initiatives represent very small quantities compared to total generation of textile waste they showcase local value creation models and inspire future circular textile partnerships with brands and producers across the Nordic-Baltic region (e.g. renewal and redesign of Nordic brand products by Baltic organizations). The main barriers to scaling up these initiatives are related to market and economic feasibility. Supportive policy measures are needed to encourage growth in these models.

Recycling/upcycling

Challenges

- No recycling capacity of non-wearable textiles in Estonia and Latvia
- Recyclers in Lithuania prefer imported stock sourced from wholesalers to locally collected waste
- Limited capacity of material type sorting as feedstock to recycling industries
- Aftermarkets abroad are saturated and limited interest among foreign operators for Baltic waste textiles
- Limited motivation among waste companies to invest in recycling technologies
- Market and economic barriers in scaling up upcycling

Opportunities

- 24,000 tonnes a year of non-reusable textiles generated by the wholesale/sorting sector presents opportunities for new recycling technologies
- An increasing number of Baltic companies are seeing opportunities for local redesign/upcycling with sorting wastes

Wholesale/sorting sector

Lithuania imports the highest quantity of used textiles per capita (22 kg/capita) of any country in Europe. Latvia (8.3 kg/capita) and Estonia (8.1 kg/capita) lie at number 3 and 4 in Europe. The sector imports 85,000 tonnes a year of used textiles to the region for sorting and processing. The sector offers both challenge and opportunities.

The Baltic countries represent an important element of the circular economy for textiles purchased and consumed in the Nordics. At least one quarter of used textiles imported to the Baltic States in 2018 for sorting and further handling originated from the Nordic Region. Moreover, exports to the Baltics represented 23% of all used textile exports from the Nordic countries in the same year.

The wholesale sector is an important source of affordable clothing for the Baltics. As already noted, a third of household consumption of clothing and textiles in Latvia and Lithuania is second-hand. The figure is one sixth in Estonia. The majority of these textiles are imported by the wholesale sector. From the point of view of the sector itself, the Baltics also represent an important market: 18% of all imported used textiles are sold 2nd hand within the Baltics. Moreover, up to one quarter of second-hand textiles sold on Baltic markets originated in Nordic countries.

The sector generates 2000 to 4000 jobs in the region. Sorting and processing of used textiles is highly reliant on a trained semi-skilled work-force. Sorting for the second-hand markets can only be done manually and it takes typically six months to train a sorter to full capacity.

The sector presents opportunities for the development of recycling industries in the Baltic States. The combination of high quantities of non-reusable textiles of consistent quantity and quality, and competitive wage levels and skilled labour,

represents opportunities for textile-to-textile recycling and upcycling and other textile recycling industries.

The majority of professional sorting activities are carried out by a few big importers, who mainly focus on sorting the imported textiles for local reuse markets or reuse and recycling markets abroad. All sorting in the Baltic countries is currently done manually with primary focus on reuse, which is the strength of the region. The Baltic region lacks sorting capacity by material/fibre type and colour for recycling purposes. Sorting for recycling is taking place to a limited extent (up to 6 categories) and mainly by professional sorting facilities of big importers.

Chemical textiles recycling technologies that are scaling up in the Nordic countries are in need of a supply of carefully sorted input materials to avoid contamination within the recycling process. In 2018 the biggest charity collector in Estonia investigated a collaboration with a Nordic chemical recycler, which did not lead to collaboration as the manual sorting pilot conducted by the charity was not capable of providing the required feedstock at the correct tolerances. Investments are needed in automated sorting technologies that can provide reliable materials at scalable volumes.

Wholesale/sorting

Challenges

- Professional sorting facilities focus primarily on imports
- Limited motivation and capacity to sort local collections
- The focus is on manual sorting for reuse, there is currently no automated sorting for recycling

Opportunities

- The Baltic States are three of the four largest importers of used textiles per capita in Europe and employs 2000-4000 workers
- The wholesale sector is an important source of affordable clothing for the Baltics
- 24,000 tonnes annually of non-reusable textiles of consistent quantity and quality and competitive wage levels/skilled labour, gives opportunities for recycling/ upcycling

6. Policy overview and considerations for policy interventions

The discussion in Chapter 5 on barriers and opportunities within each part of the Baltic value chain for used textiles lays the basis for identification of policy that can mitigate barriers and realise the opportunities.

As a first step we consider the existing policy framework and follow this up by a first consideration of additional policy that can meet the regional needs.

6.1 The EU policy framework

In 2015, the European Commission adopted a Circular Economy Package⁴⁸, which included revised legislative proposals on municipal waste to stimulate Europe's transition towards a circular economy. It was stated, that sound and efficient waste management systems are an essential building block of a circular economy. To modernise waste management systems in the Union and to consolidate the European model as one of the most effective in the world, a revised waste legislative framework⁴⁹ entered into force in July 2018. This included among other measures also a new ambitious recycling targets for municipal waste⁵⁰ as well as reinforced rules and new obligations on separate collection of certain waste streams. According to amended Waste Framework Directive (WFD)⁵¹ by 2025 EU member states are obliged to have a system in place for separate collection of textiles. This means that all used garments and textiles (both reusable and non-reusable textiles) must be collected separately for reuse and recycling by 2025. The European Commission will also consider, by the end of 2024, whether targets for textile re-use and recycling should be introduced.

The European Commission has recently adopted a new Circular Economy Action Plan⁵² – one of the main blocks of the European Green Deal⁵³, Europe's new agenda for sustainable growth. The new Action Plan introduces legislative and non-legislative measures targeting areas where action at the EU level brings real added value. In the new Plan the Commission promises the development of a

48. Closing the loop – An EU action plan for the Circular Economy (COM (2015) 614).

49. OJ, 14.6.2018, L 150, p 93, 100, 109, 141 Directive 2008/98/EC on waste, Directive 1999/31/EC on the landfill of waste, Directive 94/62/EC on packaging and packaging waste, Directive 2000/53/EC on end-of life vehicles, Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators, Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

50. If by 2020, Member States of the European Union have to recycle 50% of municipal waste generated, then the new target will increase by 5% every five years. In other words, by 2025, the level municipal waste recycling will increase to 55%, by 2030, to 60%, and by 2035, 65% of household waste should be recycled. A 5-year time extension is granted to Latvia, Lithuania, Greece, Croatia, Cyprus, Hungary, Malta, Romania, Slovakia and Bulgaria.

51. Directive (EU) 2018/851 amending Directive 2008/98/EC on Waste (the WFD).

52. Communication from the Commission to the European parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A new Circular Economy Action Plan, For a cleaner and more competitive Europe. Brussels, 11.3.2020 (COM(2020) 98 final).

53. Communication from the Commission to the European parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. The European Green Deal. Brussels, 11.12.2019 (COM(2019) 640 final).

comprehensive EU Strategy for Textiles, based on input from industry and other stakeholders. The strategy will aim at boosting the EU market for sustainable and circular textiles, including the market for textile reuse, addressing fast fashion and driving new business models. This will be achieved by a comprehensive set of measures, including:

- Applying the new sustainable product framework to textiles, including developing eco-design measures to ensure that textile products are fit for circularity, ensuring the uptake of secondary raw materials, tackling the presence of hazardous chemicals, and empowering business and private consumers to choose sustainable textiles and have easy access to re-use and repair services.
- Improving the business and regulatory environment for sustainable and circular textiles in the EU, in particular by providing incentives and support to product-service models, circular materials and production processes, and increasing transparency through international cooperation.
- Providing guidance to achieve high levels of separate collection of textile waste, which Member States have to ensure by 2025.
- Boosting the sorting, re-use and recycling of textiles, including through innovation, encouraging industrial applications and regulatory measures such as extended producer responsibility (EPR).

With respect to the 2025 separate collection requirement in the Waste Framework Directive, although the coming EU textile strategy will provide guidance, the EU legislation, the choice of how to implement the requirement is largely left to Member States.

Several EU Member States' national and local authorities have already implemented regulatory and voluntary measures to increase the circularity of textiles. The Nordic countries are among the frontrunners in developing regional circular textile systems and adopting common policy measures to support that development.

France is the first EU country that has introduced mandatory EPR for (household) textiles (and footwear), and collection rates of used textiles in France have quadrupled from 65,000 tonnes in 2006⁵⁴ to 239,000 tonnes in 2018⁵⁵.

6.2 The current policy framework in the Baltic States

Estonia, Latvia and Lithuania are full members of the EU and, therefore, are obliged to transpose EU waste legislation and targets into their national legislation as well as they are responsible for the implementation and enforcement of relevant requirements in their national legal systems. The Baltic States are at different levels in terms of the implementation of EU waste legislation. This applies also to the management of textile waste originated from households.

54. See Figure 8 in Bukhari et al (2018).

55. EcoTLC (2019).

6.2.1 Lithuania

In Lithuania, the Law on Waste Management⁵⁶ is the main legal act transposing the requirements of the WFD into national law. The main tasks, strategic goals and targets for waste management in Lithuania are specified in the National Waste Management Plan (2014-2020)⁵⁷. The NWMP aims to develop waste management system, prevent the creation of waste, separate collection of waste, processing of waste for reuse, waste regeneration, recycling and landfilling. With regard to textile waste, the plan includes an objective to ensure possibilities for people and companies to hand over used clothing and textile for reuse or recycling. However, the current NWMP still lack any specific targets with regard to textile waste. Since a new national waste management plan has to be adopted for 2021-onwards, and given the EU requirements and targets in this sector, it is very likely that such regulation will be drafted in the coming years.

Lithuania still does not have a coherent Circular Economy Strategy although the government has published plans to introduce one in the near future. Lithuania's major environmental and resource focus been related to waste management infrastructure, energy efficiency and promotion of renewable energy.

The main planned measures organised and managed by government for textile waste management are:

- The development of separate textile waste collection systems;
- Education and awareness raising;
- EU funds for improvement of waste collection centres;
- Landfill tax and binomial taxation;
- Development of end-of-waste criteria for various kinds of waste, including textile (based on EWFD, Article 6);
- Encouragement and development of sharing and reuse platforms;
- Encouragement of voluntary social initiatives for waste prevention.

Rules for the collection and recovery of used textiles

According to the Law on Waste Management, waste is defined as any substance or object which the holder discards or intends or is required to discard. However, there is still a debate as to under what circumstances used garments/textiles are waste or products⁵⁸.

Any activity relating to waste management (including textile waste collection and treatment) is strictly regulated by public institutions. Regarding the Law on Waste Management, companies, that wish to undertake waste management activities are required to apply for authorisation. The Rules for Waste Management in the Republic of Lithuania⁵⁹ (1999) state that any entity dealing with waste management, which uses any recovery operation (R1-R11) must register its activity in the State Register of Waste Managers. Thus anyone, who has collected/ produced textiles which are considered to be waste and deals with any of recovery operation should be

56. Republic of Lithuania Law on Waste Management (LT WML 1998). Available at <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/ecccf681441b11e68f45bcf65e0a17ee?jfwid=q8i881ai9>

57. Seimas of the Republic of Lithuania, 2014, The National Waste Management Plan 2014-2020. Available at <https://www.e-tar.lt/portal/legalAct.html?documentId=d833b6d0cfa811e3a8ded1a0f5aff0a9>

58. At the practical level there is much debate when deciding do every textile product, that we do not need any more or is already used, should be defined as waste, only because of the intention to discard product, and its utilization automatically should be regulated by the law of waste.

59. The Rules for Waste Management, approved by Order No. 217 of the Minister of Environment of the Republic of Lithuania of 14 July 1999.

registered and undertake procedures in order to make his business activity legal. This can be a difficult bureaucratic barrier for companies to put the circular economy into practice.

According to legislation, municipalities are responsible for organising the collection and treatment of municipal waste. Based on the NWMP, all municipalities are also obliged to organise separate collection of sortable waste. As defined in Lithuanian Waste Treatment Program⁶⁰, grants are available for municipalities to purchase separate bring-bank containers for textile waste. It is anticipated that this financial measure will help the municipalities to reach the requirement of separate collection of textile waste (including reusable textiles).

However, the main challenge identified by municipalities indicate, is not collection. The most significant issue is a lack of contractors who are able to operate the collection containers and provide appropriate treatment of collected textile waste in accordance to the regulations.

Rules on sales of second-hand textiles

The framework for selling goods derived from discarded textiles are defined by the Retail Trade Rules⁶¹, which require, that all second-hand goods must be clean, harmless and safe for the consumer. Each consignment of second-hand textile and footwear shall be accompanied by a document or tag on the consignment note, certifying that the consignment has undergone a relatively costly chemical treatment. Documenting the consignment can be challenging for some actors.

According to the Order on Trade in Second Hand Goods⁶² it is forbidden to sell second-hand lingerie for babies and toddlers up to 3 years (up to 56 size), worn children's footwear and used soft toys. Considering, that the amount of this kind of discarded textiles is increasingly rapidly, the state position to prohibit the trade of these clothes is a big challenge when implementing circular economy principles in practice.

6.2.2 Latvia

The WFD has been transposed into national legislation by the Latvian Waste Management Act⁶³. In Latvia, currently there are no concrete legal requirements with regard to a circular management of textile waste.

Local municipalities are responsible for organising an effective management of municipal waste in compliance with national and regional/local waste management plans. The National Waste Management Plan 2013-2020⁶⁴ aims to develop a waste management system, prevent the creation of waste, and organise the separate collection of waste, processing of waste for reuse, recycling and landfill. With regard to textile waste, the plan includes an objective to ensure possibilities for people and companies to hand over used clothing or textile waste for reuse or recycling. The plan identifies the following 5 possibilities for the use of textile waste: incineration with

60. This program is being created to increase funding opportunities for waste management.

61. The Retail Trade Rules, approved by the Resolution No. 697 of the Prime minister and the Minister of Economy of the Republic of Lithuania of 11 June 2001 (<https://e-seimas.lrs.lt/rs/legalact/TAD/TAIS.149527/>).

62. the Order On Trade in Second Hand Goods, approved by the Minister of Health of the Republic of Lithuania (2001).

63. Atkritumu apsaimniekošanas likums (Latvian Waste Management Act), <https://likumi.lv/ta/id/221378-atkritumu-apsaimniekosanas-likums>

64. Atkritumu apsaimniekošanas valsts plāns 2013.-2020.gadam (National waste management plan 2013-2020), <https://likumi.lv/doc.php?id=255629>

energy recovery, gasification, pyrolysis, recycling or regeneration, as well as reuse. However, the plan does not include any targets with respect to textile waste.

The Implementation Report for the National Waste Management Plan (for the activities carried out in the period of 2013-2015) noted that people are able to donate clothing to Red Cross Latvia, Otrā elpa, animal shelters, as well as H&M shops, with part of the items sold or donated for reuse, or being used as an insulating material in construction. Policy makers in the same report note that, although some opportunities for separate collection of used clothing exist, people are not aware of them, and more information provision is needed.

The Environmental Policy Guidelines 2014-2020⁶⁵ mention the need to introduce the Extended Producer Responsibility principle. The document also mentions the "cradle to cradle" principle and includes a policy objective to prevent the creation of waste, ensuring the decrease of the amount of waste landfilled and rational use of waste as a resource.

The recently adopted National Energy and Climate Policy Plan for 2021-2030⁶⁶ includes the objective to decrease greenhouse gas emissions through improved waste management for example via enhancing the reuse, recycling and regeneration of different kind of waste, including waste textiles.

So far, there are no specific legal requirements in Latvia that regulate the separate collection and use of used clothing/textile waste. A new national waste management plan has to be adopted for 2021-onwards, and given the EU requirements in this sector, it is likely that this will include a focus on textiles waste.

6.2.3 Estonia

The EU WFD has been transposed into national legislation by the Estonian Waste Act⁶⁷. In Estonia, local municipalities are responsible for organising the municipal waste management system (including separate collection of specific waste streams) in compliance with national and local waste plans.

The primary strategy for waste management, including separate collection and treatment of municipal waste, is provided by the National Waste Plan 2014-2020. As an annex to the National Waste Plan, the Waste Prevention Programme states that one of the priority activities should be the support and establishment of reuse centres to allow increased reuse of garments/textiles and other items. However, no other specific targets or measures concerning the collection of used garments or management of textile waste are defined in the National Waste Plan.

Requirements for source separation and sorting of municipal waste in municipalities is imposed by the Regulation of Minister of Environmental no. 4 "Procedures for sorting and classifying municipal waste"⁶⁸. The regulation specifies eight minimum mandatory waste types that the municipalities should consider when organising separate collection system. Textile waste is not included as one of these waste types. Nevertheless, according to the regulation, the municipalities have to ensure that

65. Vides politikas pamatnostādnes 2014.-2020.gadam (Environmental policy guidelines 2014 – 2020), <http://www.varam.gov.lv/lat/pol/ppd/vide/?doc=17913>

66. Naicionālais enerģētikas un klimata plāns (National Energy and Climate policy plan 2021-2030), https://em.gov.lv/lv/nozares_politika/nacionalais_energetikas_un_klimata_plans/

67. Jāātmeseadus (Estonian Waste Act) <https://www.riigiteataja.ee/akt/114062013006>

68. Regulation of Minister of Environmental no. 4 "Procedures for sorting and classifying municipal waste" <https://www.riigiteataja.ee/akt/12779785?leiaKehtiv>

there is a possibility to hand over garments and textile waste from households (waste code 20 01 10 for clothes and 20 01 11 for textiles) at their civic amenity sites. In practice, as described in Chapter 4.3 earlier, the vast majority of separately collected textile waste at civic amenity sites is landfilled or sent to incineration because there is a lack of textile recycling options in Estonia.

According to the Waste Act, Estonia has set targets for recycling and preparation for reuse of municipal waste in accordance with the EU WFD. Estonia has been challenged in fulfilling the 50% recycling target for municipal waste that had to be met by 2020. Ensuring the separate collection of textiles would positively contribute to meeting the new, ambitious recycling targets for 2025 and 2030.

According to the waste legislation, textile waste can be collected and treated only by an organisation which has a valid waste permit⁶⁹. This requirement has hindered the development of circular business models that use textile waste and leftovers in their production processes.

Reusable second-hand garments and home textiles are not considered as waste and therefore the collectors don't need to have a special permit for their operations. There are no special requirements for treatment of used clothes prior to resell in Estonia.

6.3 An improved policy framework

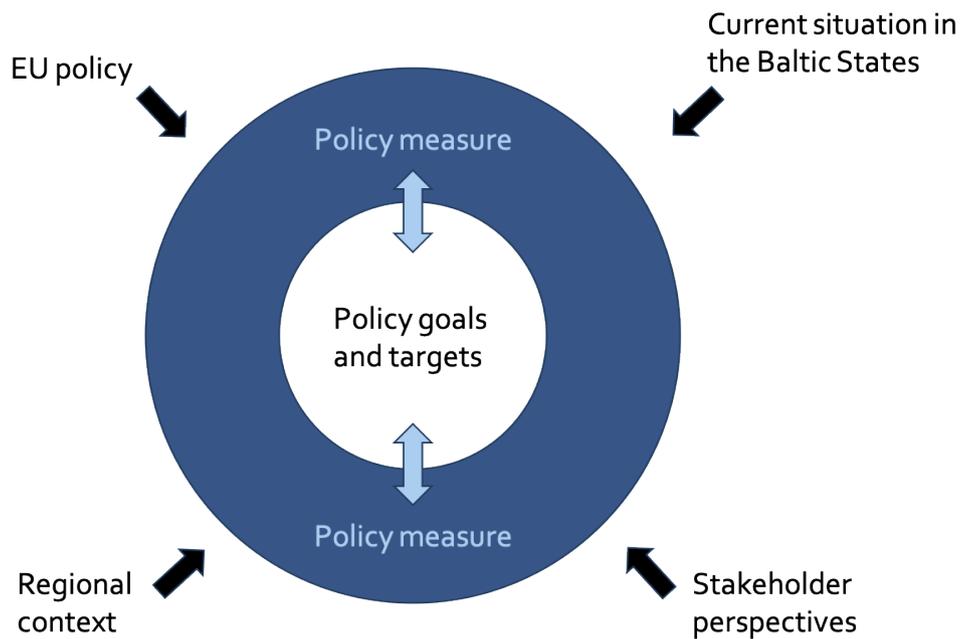
Developing targets, defining goals and developing policy measures to achieve them can provide the foundation for achieving a greater circular economy of textiles in the Baltic States. They can also indicate the politically desired direction for the development of circular textiles system.

Concrete targets pose the core of such a policy framework. The revised Waste Framework Directive sets new ambitious targets for preparation for reuse and recycling of municipal waste to which textile waste can contribute. Moreover, Article 9 of the revised WFD requires that the Commission considers targets for reuse of products (that have never been waste) in Member States by the end of 2024 of which used textiles could be expected to present a key product stream. Finally, the coming EU Strategy for Textiles may also include targets for separate collection, reuse and recycling of used textiles although this is not specifically proposed in the new Circular Economy Action Plan.

Individual countries can also adopt targets for separate collection, reuse and recycling at the national level. Additional policy goals and measures will be necessary in order to trigger the changes necessary for reaching EU or national targets in each respective Baltic State. It is crucial that the implementation of the policy measures consider the local context and stakeholder perspectives and is supported and strengthened by appropriate structures, coordination, allocation of responsibilities, milestones and follow-ups in each country (see Figure 6.1).

69. Jäätmeseadus (Estonian Waste Act) <https://www.riigiteataja.ee/akt/114062013006>

Figure 6.1. A proposed policy framework and influencing elements



6.3.1 Proposed policy goals for the region

With a basis in the barriers and opportunities outlined in Chapter 5, the main objective for the Baltic States is to move towards a more circular and sustainable textile system via increased collection, reuse and recycling of textiles.

Given the current levels of collection, reuse and recycling of textiles, several changes and further developments are necessary to reach the overall objective. In this section a list of possible supportive policy goals, which are relevant in order to achieve improvements in collection, reuse and recycling of textiles in the Baltic region, are presented.

The policy goals for the Baltic region could be structured as follows:

Increased collection

1. Increase the separate collection of used textiles and textile waste from households
2. Develop and stimulate separate collection activities for textiles and workwear from public institutions and private institutions (e.g. hospitals, nursing homes, military, hotels)

Increase and promote reuse

1. Maintain a high share of second-hand in total consumption of textiles and further nurture the demand for and culture of second-hand, repair, sharing and other reuse practices

Increased recycling

1. Establish a thriving recycling sector in the region to take advantage of low labour costs (compared to Nordics) and high quantities of recycling feedstock (non-reusable textiles) emerging from the sorting industry
2. Seed renewal (clean and repair) and upcycling (resewing and redesign) industries in collaboration with Nordic/EU brands/retailers to create quality products for sale in the Nordic/Baltic/EU market
3. Minimise the quantity of separately collected textiles that are sent to landfill/incineration

Increase awareness

1. Increase awareness, provide information and develop capacity in the area of circular textiles (collection, reuse and recycling)

Develop cooperation and common working principles

1. Increase collaboration between organisations (e.g. collectors, sorters, reuse and recycling institutions) to ensure that collected items find reuse and recycling markets
2. Increase collaboration between industry stakeholders to increase reuse and recycling of used Baltic textiles
3. Ensure that importers, domestic collectors, sorters and wholesale sector businesses adhere to minimum codes of conduct/working principles for waste treatment

6.3.2 Potential policy measures considered

With basis in literature and development of policy in the Nordics countries and other leading European countries, a first set of policy measures have been identified that can assist in meeting the policy goals presented in Section 6.3.1 above. The policies are presented in Table 6.1.

This is a very first view. Further assessment is needed of the degree to which such policy measures fit with the policy frameworks in individual Baltic States and the benefits and costs they represent.

Table 6.1. Possible policy measures that can assist in achieving proposed policy goals

Policy intervention category	Policy tool/measure	Policy goal (see section 6.3.1)									
		1	2	3	4	5	6	7	8	9	10
Strategic and legislative measurements	Define a national strategy towards circular economy of textiles	.	.	.	.	.	.	.	.	.	.
	Setting national targets for collection, reuse and recycling	.	.	.	.	.	.
	Obligation for municipalities to secure separate collection of used garments and textiles, combined with minimum targets for reuse and recycling of the collected textiles	.			.		.		.
	Establish Extended Producer Responsibility (EPR) to garments and textiles	.	.		.		.	.	.	.	.
Economic instruments	Tax/VAT reductions for second-hand retail, and repair and upcycling operations	.		.		.		.
	Tax relief on labour for domestic collectors and sorters	.			.	.					
	Higher landfill and incineration tax/charges/fees	.	.		.	.	.	.
	Economic incentives (tax reductions, etc.) for recycling companies to relocate in Baltics				.		.		.		
	Financial support to the development of the innovative technology through R&D grants (collection/sorting/recycling)	.	.		.		.			.
	Financial support to the establishment of the required infrastructure and technology investments (collection/sorting/recycling)	.	.		.		.		.	.	.
	Government funding pool for start-up investments in new circular business models within textiles	.	.	.	.	.		.	.	.
	Promotion and targets for Green/Circular Public Procurement		.	.	.	.			.
Soft instruments	Communication/campaigns to inform citizens on how to dispose of used textiles, the benefits of reuse, repair and recycled content in products)	.		.		.		.
	Codes of conduct (for collection, sorting, resell and wholesale sector)	.			.		.		.	.	.
	Building platforms for dialogue and collaboration across the sector	.	.		.	.		.	.	.	.
	Strengthen and support educational programs that ensure textiles production and handling skillset (e.g. sewing, design, repair, etc.)	.	.	.		.		.		.
	Capacity building (training and education) to increase the specific knowledge and skills for repair, redesign, resewing and other recycling activities			.	.	.		.		.
	Voluntary agreements for large public organisations to take back their textiles		.		.	.		.	.		.

7. Stakeholder perspectives on policy measures and sector development

7.1 Strategic and regulatory instruments

The following responses to policy proposals emerged from dialogue with stakeholders carried out via a number of regional and national meetings, as described in Section 3.3 towards the beginning of this report.

National strategy that supports circular textile system

Stakeholders from the three Baltic States shared a common view that the successful development of a circular textile system requires a strategic approach. Therefore, it is important to define clear goals and targets as well as adopt relevant policy measures and prepare action plan that supports the increased collection, reuse and recycling of textiles in each respective country. Circularity in textiles should be integrated into future and existing strategies that support the circular economy. For example, in Lithuania, the goals for circularity management of textiles is planned to be integrated into the National Progress Program/Plan 2021-2030 and also to the possible new Circular Economy Strategy. The representatives of national authorities stressed that it is important to integrate circular textile issue also National Waste Management Plans that are currently under development in all three Baltic States.

Collection obligation for municipalities

Most Baltic stakeholders feel that municipalities should take the lead when organising separate collection of used garments and textiles. This is especially the case for non-reusable (non-rewearable) textile. However, it was stressed that the development of collection schemes for reusable garment and textiles should be carried out in close cooperation with reuse and sorting organisations. These organisations have established relatively well-functioning collection and reuse schemes and therefore they have to be involved in further development of the system.

There are also several good examples of municipality and reuse organisation partnerships. For example, in Estonia several municipalities have launched container collection networks for second-hand (reusable) garments. The containers are owned by the municipalities but the operation (including emptying, and preparation for reuse) is provided by the reuse organisations.

In addition, it was stressed that separate textile waste collection obligations should be combined with minimum targets for reuse and recycling. Estonian and Lithuanian experience shows that separate collection obligation of household textile waste by municipal waste companies does not ensure in itself that the collected textiles are

subsequently sent for reuse and recycling. Therefore, the development of wider collection scheme of textile waste requires sufficient availability of recycling capacity in the region.

Municipality representatives stated that municipalities should have sole responsibility for ensuring the development of sufficient recycling capacity. This requires involvement of much wider group of actors.

Extended Producer Responsibility

The potential of mandatory EPR systems requiring producers to take responsibility for the entire life-cycle of their textile products, was discussed. The representatives of national authorities in general expressed that EPR could be an effective instrument to drive textile waste prevention and finance the textile waste collection and recycling system. The Lithuanian Ministry of Environment representatives showed the highest interest regarding EPR development and implementation. They see opportunities for such systems to be introduced over the coming two years.

Representatives of producers (textile industry and retail sector) were less positive concerning EPR implementation. They stressed that the local context and negative experience of existing EPR schemes in the Baltic States (e.g. problems with free riders and transparency of the system) have to be considered when introducing mandatory EPR for textiles. Estonian textile sector representatives, for example, noted that before introducing EPR scheme it is important to analyse and understand the barriers as well as benefits of textiles EPR for the producers as well as for the policy objectives.

Clear and non-restrictive legal framework

Different stakeholder groups expressed that certain legal restrictions can significantly hinder the collection and reuse of textiles. Very strict waste collection permitting legislation were perceived by some as limiting the use and handling of textile waste. In Lithuania, collection and reuse organisations mentioned that unreasonably high requirements, especially for disinfection prior to reuse, limits possibilities for social enterprises/charity organizations to collect used textiles and contribute to more circular textile system.

7.1.1 Economic instruments

Economic incentives (tax incentives)

Sweden provides tax incentives for both reuse and repair services and other EU Member States are considering such an option. Representatives of reuse and sorting sector (especially social enterprises) from all Baltic States supported the idea of providing tax relief to promote reuse and repair of textiles. This type of incentives could boost jobs in these activities. However, during the Estonian and Lithuanian workshops it was stated that governments in these countries favour tax systems that don't provide relief or exemptions for specific activities.

The Estonian experience with relatively high landfill tax (pollution charge) shows that landfill tax could have a significant incentive effect through the "price signal" and therefore create favourable conditions for diverting waste (including textile waste) from landfill. All three Baltic States are planning to increase the landfill tax in the near future.

Financial support

All Baltic stakeholders agreed that public financial support plays a very important role in developing collection, reuse and recycling systems as well as encouraging circular economy/textile innovations in products and services. Public support is especially relevant for R&D, and business innovation, as well as early-stage and large high-risk (e.g. recycling) projects that need additional financial support. The need for investment for recycling technologies for mixed fibres was highlighted.

Each Baltic State has public financial R&D support schemes/programmes in the place that could be used for supporting and developing circular textile projects and initiatives. However, these funding programmes are often very specific (e.g. only for waste management-oriented projects) and do not suit reuse and other such initiatives. In most cases the terms, conditions and procedures of such funding programmes are complicated and liabilities after receiving grants are high, discouraging developers/investors. Also, there is a lack of affordable financial support opportunities for start-up's and early stage organisations, working in the field of circularity and development of innovative business models that facilitate textile circularity. The representatives of research institutions mentioned that there is a need for research and development regarding the possible technologies but also interdisciplinary studies, which could be applied in different study fields.

The ministry representatives agreed that the funding programmes need to be more flexible and support different activities such as R&D, new business models as well as investments to recycling technologies and welcomed the proposals and recommendations from stakeholders regarding additional financing measures.

Green Public Procurement

All stakeholders also agreed that green/circular public procurement can play a key role in the development of a circular textile system and provides a powerful mechanism that encourages the development of circular production and consumption patterns. Implementation of green/circular procurement is still at a very early stage in the Baltic States.

7.1.2 Soft instruments

Awareness raising and knowledge sharing

All stakeholders agreed that rising awareness among public is a cornerstone for circular textile systems. Latvian workshops discussed the importance of organising regular consumer campaigns. For the consumers to be able to make their contribution to increased circularity in textile industry, they must be provided with a clear and well-communicated narrative so that every person can understand why and how they should behave to decrease the negative effects of their textile consumption. The story should include instructions on how to sort textiles so that the separate containers do not end up with "surprises" that cannot be used for recycling, reuse or upcycling (detail what quality of garment should go to the containers, what can still be donated, etc). Communication channels should cover all audiences and consumer segments (young generation, traditional media for older generations, social networks, influencers, etc.).

The role of schools, municipalities, waste management companies and NGOs should

be supported and strengthened to help raise awareness on textile consumption and circularity. The importance of design education on circular product design and educating designers who are already working in practice was highlighted by stakeholders. Data and illustrative materials should be used to communicate the case for circularity. Particular attention should be paid to shopping malls and their responsibility to educate their customers.

During the Estonian workshops, it was recommended that campaigns should be organised together with relevant actors (e.g. municipalities, NGOs and reuse organisations) to achieve the best results.

The representatives of reuse and recycling sector organisations stressed that it is also important to educate relevant specialists in the sector (e.g. via special courses and knowledge exchange), because the new approaches and methods require also new skills from people who work in this sector.

Codes of conduct and voluntary agreements

The development of a transparent system for textile collection, reuse and recycling requires certain harmonisation of related activities in the Baltic region. The need for common principles was discussed during Estonian roundtables. The representatives of textile industry and recycling sector agreed that codes of conduct and agreements between different stakeholder groups are very useful to ensure common rules and standards that are relevant for all actors engaged in collection, sorting, reuse, recycling and waste management of textiles and textile wastes.

Cooperation and collaboration

Several stakeholder representatives mentioned the need for building platforms for dialogue and collaboration across the sector. Currently there is a lack of a systematic approach and the real cooperation between key stakeholders (e.g. between local authorities, NGOs, collectors and sorters, reuse organisations as well as waste management companies). Development of textile collection, reuse and recycling systems requires close cooperation among different key actors.

In Lithuania, it was mentioned that for the collection and reuse organisations, it is difficult to expand their collection, because the municipal waste companies have an advantage when applying for tenders. On the other hand, the municipal waste companies have difficulties with dealing with the low-quality textile streams collected at their reuse centres. There is also a lack of know-how support regarding the development and maintenance of reuse centres.

Estonian recycling industry representatives stressed that the development of regional recycling capacity requires close cooperation between Baltic as well as Nordic partners.

8. Recommendations and future considerations

This final chapter sets out proposals for careful consideration by local and national government in Baltic countries and other stakeholders when developing a circular economy for textiles and preparing for the EU's 2025 separate textile collection requirement for textiles. Table 8.1 provides an overview of recommended focus areas and actions by key stakeholder groups.

Strategic approach and regulatory framework

In order to develop a successful circular textile system, there is a need for a systematic approach at a systemic level. Experiences in France and elsewhere have shown that where national governments adopt clear targets for increased collection, reuse and recycling of used textiles, and policy measures that provide incentives for all stakeholders to meet these targets, clear progress is made towards a circular economy for textiles. It is therefore important for national governments to create such a framework of goals and targets complemented by a supportive regulatory framework that provides legal and economic incentives for different actors in the textile value chain. Inspiration can be gained from the Nordic countries who are among the frontrunners in developing regional circular textile systems and adopting common policy measures to support that development.

Ensuring the economic viability of textiles collection, reuse and recycling

A critical element of a circular textile system is ensuring that organisations acting at all stages along the value chain of collection, reuse can operate under economically viable conditions. Experiences in the three Baltic States show that the operational costs of the circular textile system can be high. This is particularly the case for collection of used textiles in rural areas but also for the recycling of non-rewearable textiles. The economic viability of operations will come under further pressure towards 2025 when non-rewearable textiles will increase their share in collected textiles. Under these circumstances it is likely that collection and processing of textile waste will require additional financing at least during transition phases. Such funding could come from national or local authorities or from producers. National governments need to discuss and plan with key stakeholders how these costs should be covered at an early stage of the system development. Extended Producer Responsibility scheme, waste fees and taxes could be considered as possible measures to ensure the financial viability of the collection and recycling of used textiles. The choice of appropriate and effective measures requires careful analysis of the costs and impacts born by different actors.

Strengthen sorting capacity and recycling in the region

One of the strengths of the Baltic region is the large wholesale and sorting sector

for imported used textiles that are processed and subsequently sent for reuse on domestic and foreign reuse markets. Along with the reusable textiles the sector outputs large quantities of non-reusable textile waste. A significant share of this is sent for recycling but this is mostly 'downcycled' for use in lower quality products. The region has a high potential for providing high volume, consistent inputs to textile-to-textile recycling/upcycling and higher quality open-loop recycling since the three Baltic States still have textile/fashion design and sewing skills available. There may be potential for collaboration between upcycling companies in the Baltic states that have access to high volumes of post-consumer textiles from Baltic sorting companies/wholesalers and Nordic retailers that could sell the resulting high-quality products on Nordic markets.

Fibre to fibre recycling will require automated sorting of the waste textiles by fibre type and colour. It also requires increased demand from textile-to-textile recycling. To increase and further develop the sorting capacity, public and private investment into automated sorting technologies strategic collaboration with existing automated sorting technologies, such as Siptex (Sweden), LSJH (Finland) or Fibersort (Netherlands) should be investigated⁷⁰. A similar approach can be considered for supporting textile recycling technologies where collaboration opportunities with Nordic recycling industry should be investigated. In addition to individual company grants, funding opportunities should be provided for multi-stakeholder initiatives and research programs. A regional Baltic approach is recommended together with Nordic-Baltic collaboration potential across these activities that can be leveraged.

Supporting new business models

Business models that organize longer use of products (e.g. lease, rent, re-commerce, repair, resell, reuse), product take-back and material circularity (e.g. upcycling) play a vital role in accelerating the circular economy transition. These new business models generate money and jobs, as well as promote circular consumption practices. However, new circular business models are often start-ups which could benefit from financial and business support by funding bodies and national public business authorities in the form of grants, business counselling, coaching, etc. Additionally, national governments can develop policies designed to accelerate the market share of these circular business models. Inspiration can be drawn from the Telaketju⁷¹ program in Finland, Wärgon Innovation⁷² in Sweden, the Green Circular Transition⁷³ program in Denmark and the Dutch Circular Textile Valley⁷⁴.

Green/circular public procurement

Public procurement has the potential to play an important role in moving towards a circular textile system. This could for example be through setting purchase criteria that favoured eco-designed workwear and other textiles e.g. durable, repairable and recyclable products and products with recycled content. Circular public procurement can provide a powerful mechanism that encourages the development of circular

70. See Watson et al, (2020b) for an overview of these three technologies.

71. Telaketju <https://telaketju.com>

72. Wargon Innovation <https://wargoninnovation.se>

73. Green Circular Transition <https://cleantech-hub.dk/green-circular-transition-program/>

74. Dutch Circular Textile Valley <https://www.dutchcirculartextile.org>

production and circular products. Key elements of a circular procurement policy can include specific targets on circular public procurement practices and eco-design and minimum circular criteria in public procurement guidelines and rules. Public authorities should be encouraged or required to procure eco-designed textiles and disseminate lessons learnt.

While promoting circular procurement, it is important to provide education and knowledge for procurers. Therefore, it is advisable to consider existing good practice examples regarding implementation of green/circular procurements in the Baltics and further abroad e.g. the Netherlands.

A Baltic circular textile business cluster

Collaboration nationally, internationally and across the value chain is crucial in achieving a circular economy transition. The Baltic countries are relatively small in size and population, and that makes it challenging to develop an ambitious plan for national circular textile ecosystems. A Baltic circular textile business cluster driven by national authorities and regional organisations is needed. The cluster would increase the productivity of the companies in the region, drive innovation and knowledge in the field, and stimulate new businesses. The regional cluster could apply for EU funds applications and investment loans strengthening the region's capacity in circular transition. Collaboration could be widened to the Nordic countries to encompass the many innovative companies and organisations working on increased circularity in textiles in the Nordic region.

Increase engagement with municipalities

The 2025 obligation to organise the separate collection of used textiles and textile waste will be a driver for municipalities to engage with textile collection and build collaboration with for-profit and non-profit operators on the market. Collaboration between different actors can strengthen collection and better ensure that the collected textiles are reused as far as possible and recycled where they can't be reused, rather than sent to landfill or incinerated. The activities of charitable and commercial textile collectors should be supported rather than undermined for creating a holistic national circular textile system. Existing actors have valuable know-how of textile collection, used textile processing and global markets. This is a huge asset and should be utilised instead of reinventing the wheel. Inspiration on collaborations between municipalities and other actors can be found in the ECAP report on textile collection in European cities⁷⁵ and from UK WRAP's guidelines for collectors and municipalities⁷⁶.

Build trust and transparency in the collection value chain

When donating clothes, consumers are increasingly interested in knowing where their donations go and how the money is raised from them is utilized. Increased transparency in these areas can strengthen citizen trust in existing collection systems and increase collection rates. It can also increase collaboration by

75. Watson, et al. (2018a).

76. UK WRAP (2016).

strengthening the trust of public, charitable and commercial actors in one another. There is currently little or no formal reporting on quantities and fate of textiles collected by various collection organisations. Inspiration for developing transparency can be drawn the Nordic Reuse and Recycling Commitment⁷⁷, developed by the Nordic Council of Ministers.

Increase consumer awareness and engagement

Environmental awareness and consumer attitudes towards environmentally favourable consumption practices are among the key enablers of circular economy transition⁷⁸. Hence strengthening pro-environmental attitudes and increasing citizen awareness and engagement in textile circularity (e.g. textile reuse and recycling options, buying second hand products or repairing products) is needed. This could be achieved through awareness campaigns, environmental awareness education within school curricula and point-of-sale information dissemination by retailers and 2nd hand businesses on textile reuse and recycling. Inspiration for public awareness materials can be found from ECAP⁷⁹ and WRAP⁸⁰, which provide practical communication materials, ideas and guidance to help with consumer messaging.

Contaminated donations are a problem among local collectors; at the same time consumers are often not able to adequately distinguish between reusable and non-reusable textiles. Operators on the market communicate with different messages in terms of what they accept and don't accept in their collections which can confuse consumers. Communication messages should be well thought through and ideally synchronized across different operators to simplify the message. In France, a third party EPR organization EcoTLC carries out communication at national level through various media and assists municipalities via developing communication toolkits and guides⁸¹.

Strengthen circular design education

Fast fashion products that are not durable and apply blended fibre compositions pose a serious challenge to the end-of-life treatment of textiles. Most textile professionals are trained to design and produce clothes with only aesthetics and end-price in mind. To transition to a circular economy, current and future designers need to be educated on how to use eco-design principles and to understand the use and end-of-use phases of a garment's lifecycle. Educational institutions, relevant industry associations and other circular economy initiatives can organize such training. Inspiration can be gathered from ECAP's Design for Longevity Platform⁸², Circular Design Guide by Ellen MacArthur Foundation⁸³, Mistra Future Fashion's TED's TEN⁸⁴ and Nike's Circular Design Workbook⁸⁵.

77. See e.g. Frâne et al (2017).

78. See e.g. Cerulli-Harms et al. (2018).

79. European Clothing Action Plan (ECAP) Engaging European Consumers <http://www.ecap.eu.com/take-action/consumer-behaviour-change/>

80. The Waste and Resource Action Program (WRAP) Love Your Clothes <https://www.wrap.org.uk/content/love-your-clothes-waste-prevention>

81. See Watson, et al. (2018a).

82. Design for Longevity <https://designforlongevity.com>

83. Circular Design Guide <https://www.circulardesignguide.com/fibres>

84. TED's TEN <http://www.tedresearch.net>

85. Circular Design Workbook <https://www.nikecirculardesign.com>

Strengthen industry academia collaboration

In general, industry academia collaboration is weak in the Baltic region and companies are rather passive when it comes to collaborating with knowledge institutions. More collaboration is encouraged to find innovative solutions for textile circularity, e.g. circular product design, design and test of collection models, development of new business models, developing sorting and recycling technologies or better understanding of consumer behaviour and their acceptance of new circular business models. Research and knowledge institutions can provide valuable resource in circular transition, e.g. in data collection, analyses, deep-dive insights, technology developments, etc. Inspiration for industry-academia collaboration can be drawn for example from Telaketju⁸⁶ (Finland), Wargon Innovation⁸⁷ and Re:Source⁸⁸ (Sweden), Texplus⁸⁹ (Netherlands).

Need for further investigation

Further studies are needed in moving forward with a circular textile eco-system development in the Baltic countries. Potential focus areas include developing an in-depth understanding of key stakeholder needs to define priorities for sector development; an assessment of the need and feasibility for sorting and recycling technology development and implementation on national and regional levels; and in-depth study on how best to economically support the collection and sorting sectors, as the share of non-reusable textiles in collection increases. This could include reviewing the feasibility of Extended Producer Responsibility systems in the Baltic states.

There is also potential for a case study on further knowledge transfer from the Nordic countries to the Baltics taking this current project as a starting point. This could include knowledge transfer from circular textile systems such as Telaketju in Finland and the development of policy measures to support these.

There is also a need for more research into consumer behaviour related to textile consumption and disposal on the Baltic market. Consumers' personal and psychological aspects, such as personal values, environmental awareness, interest in philanthropy and so on play an important role in product purchase, use and disposal decision-making. Surveys conducted by, for example, the European Clothing Action Plan (ECAP)⁹⁰, MISTRA Future Fashion⁹¹, WRAP⁹² and Trash2Cash (EU)⁹³ can provide inspiration.

86. Telaketju <https://telaketju.com>

87. Wargon Innovation <https://wargoninnovation.se>

88. Re:Source <https://resource-sip.se/om-resource/resource-in-english/>

89. Texplus <https://texplus.nl>

90. European Clothing Action Plan <http://www.ecap.eu.com>

91. MISTRA Future Fashion <http://mistrafuturefashion.com>

92. WRAP <https://wrap.org.uk/sustainable-textiles>

93. Trash2Cash <https://www.trash2cashproject.eu>

Table 8.1. Possible measures and actions by various actors

Actor	First considerations (measures and actions)
National authorities	<ul style="list-style-type: none"> - Set targets and objectives for collection, reuse and recycling and develop monitoring and evaluation systems - Implement appropriate policy measures that can ensure that these targets are met - Ensure a clear legal framework and standards that support the collection, reuse and recycling of used textiles and textiles waste - Promote circular procurement via specific targets, public procurement guidelines and rules - Ensure the economic viability of used textiles collection, sorting and recycling for engaged actors - Encourage and support businesses in circular solutions, business model developments and innovative partnerships - Provide financial support for establishment of automated sorting and recycling of non-reusable textiles - Include above-mentioned into national strategic documents/plans
Local authorities	<ul style="list-style-type: none"> - Ensure separate collection possibilities for all used textiles including textile waste in collaboration with different actors. - Develop communication and awareness raising activities for citizens on the textile circular economy - Encourage and support local businesses in circular solutions, business model developments and innovative partnerships
Collectors & sorters	<ul style="list-style-type: none"> - Develop current sorting practices with focus on increased local reuse (e.g. sorting for local 2nd hand industry, brand and retail collaboration) - Increase collaboration between domestic collectors and sorters/wholesalers - Develop sorting capacity for fibre-to-fibre recycling markets and investigate investment opportunities into sorting technologies - Investigate the integration of repair and renewal services within existing operations (consider partnerships with local actors) - Develop strategic collaboration with recyclers and innovators (locally or internationally) for circular value chain development - Join forces with competitors in projects/initiatives to push innovation, mobilize material flows and build regional capacity - Develop a universal code of practice to harmonise textile collection, sale and recycling
Second-hand sector	<ul style="list-style-type: none"> - Critically evaluate the current sourcing channels of merchandise in terms of transparency and circularity (imports vs. local supply) - Engage with consumers on sustainable consumption matters - Create attractive retail environments to provide professional 2nd hand experience for consumers - Build collaboration with other industry stakeholders, including municipalities, for developing circular textile systems
Waste management/ recycling sector	<ul style="list-style-type: none"> - Develop collection and recycling capacity of textile waste - Create strategic partnerships with charitable and commercial collectors, municipalities, recyclers and circular businesses
Producers/Brands	<ul style="list-style-type: none"> - Implement eco-design principles in product design - Implement targets and practices in order to uptake recycled fibres in products and collections - Seek collaboration with collection, renewal, resell and recycling companies to circulate excess stock and post-consumer textiles - Engage with/nudge consumers on product choice, use, reuse and disposal matters - Collaborate with local reuse, repair and upcycling communities for

	<p>local textile eco-system development</p> <ul style="list-style-type: none"> - Avoid greenwashing in communication and provide realistic and transparent information on textile circularity
Consumers	<ul style="list-style-type: none"> - Buy used or rent/lease instead of buying new - Wash with care, mend and repair - Pass on unwanted garments for reuse and recycling - Demand transparency and adapt a critical lens in circular textile communication - Give feedback to collectors, local municipalities, reuse organisations, brands and producers
Academia (research and education)	<ul style="list-style-type: none"> - Make circular economy of textiles a strategic area of interest for research - Strengthen circular economy focus in the existing curricula and study projects - Engage in international research consortiums for knowledge exchange, research collaboration and demonstration projects - Proactively engage with local business, non-profit and start-up communities for collaboration
Consumers	<ul style="list-style-type: none"> - Buy used or rent/lease instead of buying new - Wash with care, mend and repair - Pass on unwanted garments for reuse and recycling - Demand transparency and adapt a critical lens in circular textile communication - Give feedback to collectors, local municipalities, reuse organisations, brands and producers
Academia (research and education)	<ul style="list-style-type: none"> - Make circular economy of textiles a strategic area of interest for research - Strengthen circular economy focus in the existing curricula and study projects - Engage in international research consortiums for knowledge exchange, research collaboration and demonstration projects - Proactively engage with local business, non-profit and start-up communities for collaboration

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Appendix 1

Questions for Collectors

1. What quantity of used textiles did your organization collect in your country in 2018 (or 2017)? Is this more than the previous year?
2. Additional questions on the reported collected quantity:
 - a. Is this quantity based on measured weights or is it an estimate?
 - b. Does the quantity include, bags, toys / other goods not included in our scope such as floor carpets (with rubber underlay)?
3. If the reported quantity contains shoes, bags, toys, other goods, do you have an estimate of what percentage of the total that this represents?
4. How do you collect used textiles? E.g.
 - a. In your stores,
 - b. In drop-off containers
 - c. Via door-to-door collection
 - d. Other

How many stores and containers does the organization have? Where are containers placed?
5. Do you also receive textiles from **municipal waste companies** that they have collected in **their own** containers or via their own door-to-door collection etc.? What quantity did you receive from them in 2018 (or 2017)? Were these quantities included in the quantity you reported under question 1?
6. Do you also get donations from **private businesses** of new and/or used textiles eg uniforms, work clothes from all sectors and/or unsold clothing collections from retail / brands, etc.? What quantity did you receive in 2018 (2017) and from what types of businesses? Were these donations included in the quantity you reported under question 1?
7. Do you also get donations from **public (state or municipal-owned) organizations** e.g. hospitals, schools etc. of new and/or used textiles? What quantity did you receive in 2018 (2017) and from what types of organisations? Were these donations included in the quantity you reported under question 1?
7. What happened to the textiles you collect from all these sources? Do you:
 - a. sell them unsorted (as 'original') to a local wholesaler/sorting organisation? (Who?)
 - b. export them unsorted to a wholesaler abroad? (Who?)
 - c. Skim off the best textiles for sale in your shops? (How many shops do you have including those in other countries?)
 - d. Fully sort them yourselves in your own sorting plants?

If you answered d. then jump forward to question 10. You should also answer the questions for sorting plants (see other sheet)
8. **If you answered c** in the previous question (i.e. you skim off the best textiles for sale in your shops):
 - a. What share of your total collected textiles do you skim off for sale in your shops (% or total quantity in 2018/2017)?

- b. What do you do with the remaining textiles (*more than one of the options below could be correct. In that case indicate the shares that end in each route, and describe each in detail*):
 - i. Donate reusable items locally to people in need (describe)
 - ii. Sell/give to wholesaler/sorter (who?)
 - iii. Recycle into other products (including upcycling). What kind of recycling are we talking about? What kinds of products? Is it local or exported for recycling elsewhere.
 - iv. Send for incineration/landfill (where?)
 - v. Other?
- 9. Concerning the quantity that is sent for incineration/landfill?:
 - a. have you tried to reuse or recycle it? If so what did you attempt? What obstacles did you meet? What collaborations did you investigate?
 - b. What local recycling solutions exist today that have potential?
 - c. Do you have to pay waste fees to get rid of it? How much?
 - d. What type of products/fibre types does it comprise?
- 10. Concerning general economic conditions for used textile collection:
 - a. How has this developed in recent years in your country?
 - b. What has caused these developments?
 - c. Does the import of used textiles from other countries affect the economics of your operations?
- 11. What other obstacles do you have in increasing the collection and resell of used textiles?
 - a. Regulative and legal (e.g. waste definitions)
 - b. Lack of markets
 - c. Lack of technology
 - d. Lack of quality
 - e. High level of contamination
 - f. other
- 12. How could government assist in overcoming these obstacles you identified in the two previous questions?
- 13. Would you be interested in following developments in this project and meeting government, recycling businesses etc. at workshops?

Appendix 2

Questions for municipal waste collectors

1. How much mixed waste did you collect from households in your area(s) in 2018 (or 2017) (tonnes?) *(please include small mixed waste collected at municipal waste centres in this total)*
2. How many households do you serve?
3. Have you ever carried out a sampling analysis of household mixed waste? If yes:
 - a. Can you please send the results to us?
 - b. What was the share (by weight) of textiles in the mixed household waste?
4. Do you also collect bulky waste from households or in municipalities? If yes:
 - a. How much did you collect in 2018 (or 2017) (tonnes)
 - b. How is it treated after collection? Is it sorted into fractions or is it sent straight to landfill or incineration?
 - c. Are there textiles in the bulky waste? What happens to these
 - d. Have you ever made a sample analysis of bulky waste?
 - i. Can you please send the results to us?
 - ii. What was the share (by weight) of textiles?
5. **Do you carry out** any separate collection of textiles in your area? If yes:
 - a. Via door-to-door collection?
 - b. Via drop-off containers at municipal civic amenity sites?
 - c. Via drop-off containers elsewhere?
 - d. Other means?
6. If you answered yes to any of the options in question 5, is it your organization **that runs the collection**? Or is it another organization/charity? Who? *(Note for interviewer – we need to be careful to avoid double counting here – so double check with the partner organization on whether they also reported these amounts)*

If it is you that runs the collection of textiles/owns the textile containers etc. please answer the questions below. If not jump to question 10
7. What quantity of textiles did you collect into **your own** containers or via household collection in 2018 (or 2017) (tonnes)? Is this more than the previous year?
8. What do you do with the collected textiles? *If more than one option is correct then please indicate shares (%) going down each route*
 - a. sell them/donate them unsorted to a local charity or wholesaler/sorting organisation? (Who?)
 - b. export them unsorted to a wholesaler abroad? (Who?)
 - c. Fully sort them yourselves in your own sorting plant? (Where is this?)
 - d. Other (what?)
9. If you answered yes to 8c (e.g. you fully sort them in your own sorting plant), please describe what you do with the resulting fractions:
 - a. What share is reused? (how and where?)
 - b. What share is recycled? (how and where?)
 - c. What share is incinerated/landfilled?

10. If you don't engage in separate collection of textiles, is this because:
- a. Other organisations collect used textiles in your areas? (*if so do you collaborate with them?*)
 - b. You have not considered used textiles as a waste stream worthy of separate collection? (if not what is the key argument)
 - c. Other
11. In general do you foresee obstacles to the separate collection of textiles by municipal waste companies? Please describe these?
- a. Regulative/legal
 - b. Negative economics
 - c. Lack of markets
 - d. Lack of technology
 - e. Lack of quality
 - f. High level of contamination
 - g. other
12. How could government assist in overcoming any identified obstacles?
13. Would you be interested in following developments in this project and meeting government, recycling businesses etc. at workshops?

Appendix 3

Questions to importers/wholesalers

1. How many sorting centres do you have in your country?
2. What quantity of textiles did you process in these sorting centre(s) in your country in 2018 (or 2017)? Is this more than the previous year?
3. Additional questions on the reported processed quantity:
 - a. Is this quantity based on measured weights or is it an estimate?
 - b. Does the quantity include, bags, toys / other goods not included in our scope such as carpets with rubber backing?
 - c. If the reported quantity contains shoes, bags, toys, other goods, do you have an estimate of what percentage of the total this represents?
4. Where did the quantities of textiles you report on under question 2 come from? Please give the share that originated from:
 - a. Your country
 - b. Other Baltic countries
 - c. Nordic countries
 - d. Rest of EU (other than Nordics and Baltics)
 - e. Outside EU
5. What happened to the processed textiles? Provide **both** i) the share (%) following each route, and ii) the detail description of each in terms of product types, partners, countries etc.
 - a. Sold for reuse in Your country (*which qualities, sold in your own shops or partners?*)
 - b. Exported for reuse elsewhere? (*which qualities, to where and to whom?*)
 - c. Sent for recycling locally (including upcycling)? (*which partners, what type of recycling, what types of end products?*)
 - d. Exported for recycling elsewhere? (*which partners in which countries, what type of recycling, what types of end products?*)
 - e. Discarded as textile waste/municipal waste for incineration/landfill?
6. Concerning the textiles sent for waste disposal (answer e. above)
 - a. Where was this discarded?
 - b. How was it categorized?
 - c. What waste fees do you pay?
 - d. Do you know if it was incinerated or landfilled?
 - e. What type of textiles/fibres does it comprise?
 - f. Have you tried to recycle it? If so what did you attempt? What obstacles did you meet?
7. What obstacles have you experienced to increasing the reuse/recycling rates of the textiles that you process? Please describe in detail:
 - a. Regulative and legal (including transport of waste issues)

- b. Trade barriers
- c. Tight economics
- d. Lack of technology
- e. Lack of quality
- f. High level of contamination
- g. other

8. How could government assist in overcoming the obstacles identified above?

9. Would you be interested in following developments in this project and meeting government, recycling businesses etc. at workshops?

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