



Nature and Extent of Post-Consumer Textiles in Ireland

Study Report



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Prepared for the Environmental Protection Agency

by

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Executive Summary

Textiles provide for both essential and non-essential requirements across society, for individuals, within industry and for both the private and public sectors. The production of textiles involves complex global supply chains and with their increasing rate of consumption highlights a linear economic model that is unsustainable. Post-consumer textiles are textiles that consumers do not require anymore and have decided to discard such as clothing, footwear, towels, bedlinen, upholstery etc from household, commercial, industrial and public service settings. This study was commissioned by the Environmental Protection Agency to determine the nature and extent of the current consumption of new textiles and generation of post-consumer textiles in Ireland and reviews the current systems used to collect textiles for reuse, recycling and disposal. The report makes recommendations to improve separate collection of post-consumer textiles, to facilitate and encourage more reuse within Ireland, to foster more repair of textiles, and to take longer-term steps towards more sustainable consumption and use of textiles.

The proliferation of production and consumption of textiles has given rise to significant environmental and climate impacts. According to the European Environment Agency in 2019, the supply chain pressures from textiles is the fourth highest for use of primary raw materials and water, after food, housing and transport, and the fifth highest for greenhouse gas emissions. This has become a critical factor in the development of policies and programmes at the European and national level which aim to embed textiles within a circular model. Measures for textiles explicitly feature in the revised Waste Framework Directive – notably requiring Member States to set up separate collection for textiles by 2025, to encourage the re-use of products and the establishment of systems promoting repair and re-use activities. The consideration of future reuse and recycling targets for textiles is also included. The Second EU Circular Economy Action Plan (2020) identifies textiles as one of five priority product value chains to be integrated into the sustainable product policy framework under the Action Plan. The upcoming EU Strategy for Textiles in 2021 proposes to help Member States shift to a climate-neutral, circular economy where products are designed to be more durable, repairable, recyclable and energy-efficient. At national level, the 2020 Waste Action Plan for a Circular Economy sets out a new roadmap for waste planning and management to support circularity and sustainability in Ireland and identifies textiles as one of seven key product value chains.

This study examines the current consumption of new textiles in the Irish context, collating import and export data from the Central Statistics Office (CSO) and PRODCOM data regarding production and summary information on retail sales figures. Based on 2019 data the net consumption of textiles in Ireland is 263,000 tonnes (i.e. imports plus production minus exports for the country) and per capita consumption of new textiles is estimated at 53 kg per person per year. The overwhelming majority of

imported textiles in Ireland is clothing and a comparison of the imported tonnes of clothing for the years 2018 and 2019 shows there is a significant increase which requires further investigation. The study details the quantitative flows of post-consumer textiles within and out of Ireland based on a combination of informed estimates and reported data and estimates total post-consumer textiles in Ireland to be around 170,000 tonnes per year (includes clothing, footwear and other textile products). Per capita generation of post-consumer textiles in Ireland is estimated at 35 kg per person per year which is higher than the reported EU average of 26 kg per person per year. The study identifies the single largest source of post-consumer textiles is the household bin. In the order of 64,000 tonnes of clothes and other textiles per year are disposed as household waste via kerbside collection, of which around 42,000 tonnes are clothing. The next most significant source of post-consumer textiles is the estimated 40,000 tonnes per year collected by the commercial textile recyclers via their textile banks and through community and club collections. The Irish charity sector is an important source of post-consumer textiles which collects an estimated 17,500 tonnes per year, of which around 8,500 tonnes per year are sold in the charity shops and approximately 9,000 tonnes per year are sold to the commercial textile recyclers for export overseas or recycling. Another large source is the estimated 18,000 tonnes per year of post-consumer textiles from the non-domestic sector, i.e. commercial and industrial facilities via kerbside waste collections. Other sources of post-consumer textiles include textile packaging waste, vintage and online sales, textile industry sector, litter etc.

The study presents a number of findings on the status of separate collection, reuse and recycling of post-consumer textiles in Ireland. Estimates show 65% (around 110,000 tonnes) of total post-consumer textiles each year are collected as waste from household, commercial and industrial sectors and nearly all are processed via waste-to-energy plants or landfill. Of this, an estimated 67,000 tonnes of textiles are from the household waste stream (clothing, other textiles and textile packaging). Around 34% (approx. 57,000 tonnes) of total post-consumer textiles generated each year in Ireland are separately collected primarily through commercial textile banks and collections, and secondly through charity shop direct donations. This is slightly higher than the median EU separate collection rate of post-consumer textiles reported as 30%. In terms of estimates for reuse of post-consumer textiles each year, 27% (44,500 tonnes) are sold for reuse, of which 6% are sold for reuse within Ireland and 21% are exported overseas. Currently data is not available on the final end use of this exported material. Around 9% (15,000 tonnes per year) of total post-consumer textiles in Ireland go for recycling as rag, fibre, etc. Vintage and online reselling of clothes is estimated as 1% of the total post-consumer textiles generated in Ireland.

The study also conducted interviews with relevant stakeholders to the Irish textile sector to share their views on improvements needed for the existing collection and management of post-consumer textiles

within Ireland to support a circular textiles system. This consultation has informed the recommendations identified in the study.

The findings of this study show that the existing textile systems in Ireland need to be developed to facilitate increased separate collections, reuse and recycling of post-consumer textiles and more sustainable consumption of textiles. The study identifies the following initial recommendations to set Ireland on the path towards a circular textiles framework:

- There is a pressing need to obtain better data on the flows and fate of post-consumer textiles. For both textiles that are ‘waste’ and textiles that are not waste, as Ireland moves towards the circular economy model, it is important that the flows of all post-consumer textiles are understood.
- Waste prevention and sustainable consumption must be introduced in this sector. This could include measures such as green procurement; reducing fashion-driven personal consumption; increasing reuse; facilitating repair; and at end of life, favouring reuse/recycling over disposal.
- Targeted educational campaigns are required to raise awareness for the public on sustainability issues as raised in this report.
- Separate collection of textiles in Ireland needs to be significantly improved, particularly at the domestic level which is the major source (around 67,000 tonnes per year of clothing, other textiles and textile packaging in the municipal waste stream). This should be underpinned by better information for the public on textile recycling.
- In conjunction with improved collection methods, there is also a need to locally develop capacity and outlets to manage post-consumer textiles. For example, there is a need to explore strategies to maximise sales via existing outlets, as well as upcycling, downcycling and recycling opportunities.
- Increased reuse within Ireland will benefit Ireland’s skill profile, create opportunities for training and employment, and in the longer-term foster innovation in circular economy design.
- Additional regulation of textile banks should be considered – potentially through a code of conduct operated by the charities regulator.
- International best practice examples are useful and provide guidance, however, local pilot-projects are required to understand how novel measures might be suited to the Irish context.

Going forward, the findings and recommendations from this study will inform future consultations and measures identified in Ireland’s Waste Action Plan for a Circular Economy to support the requirement for separate collection of textiles by 2025 and to improve circularity in textiles in Ireland.

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1. Overview

Aims of the project

This project was commissioned by the Environmental Protection Agency's National Waste Prevention Programme (NWPP) to provide information for national policy to address an identified knowledge gap in relation to textiles in Ireland. The project further identifies potential measures to support Ireland's commitment to separately collect textiles by 2025 and sustainable consumption of textiles.

By 1 January 2025, under the 2018 Waste Framework Directive¹, EU Member States will be obliged to collect textiles separately. However, it is important to note that the Waste Framework Directive does not explicitly define textiles. The Second EU Circular Economy Action Plan (2020)² identifies textiles as one of five priority product value chains to be integrated into the sustainable product policy framework under the Action Plan. The upcoming EU Strategy for Textiles in 2021 aims to establish a comprehensive framework to create conditions and incentives to boost the competitiveness, sustainability and resilience of the EU textile sector. The textiles chain is one of the priority value chains identified under Ireland's new national policy, A Waste Action Plan for a Circular Economy³.

This project aims to understand the consumption pattern of textiles in Ireland in terms of both original consumption as well as post-consumer fate, addressing the following areas:

- Current consumption of textiles
- Current nature and extent of post-consumer textiles
- Existing systems for the collection and management of post-consumer textiles
- Best practices in terms of collection, segregation and recycling

Textiles definition

The scope of textiles included in the study has been quite broad in its reach. The main categorisation on the input side is based on import and export categorisations, along with PRODCOM NACE⁴ codes. Thus, the broad categorisations of textiles/textile products, clothing, and footwear have been used.

¹ Directive (EU) 2018/851 of the European Parliament, amending Directive 2008/98/EC
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0851&from=EN>

² The European Commission's Circular Economy Action Plan from March 2020, available [here](#)

³ Department of the Environment, Climate and Communications. [Waste Action Plan for a Circular Economy](#), September 2020.

⁴ NACE -NACE is the acronym used to designate the various statistical classifications of economic activities in the [European Union \(EU\)](#) and provides the framework for collecting and presenting a large range of statistical data according to economic activity. Statistics produced on the basis of NACE are comparable at European and, in general, at world level. The use of NACE is mandatory within the [European statistical system](#).

Textiles/textile products is wide in its scope and includes items to be used to produce textile products like yarns, thread and so forth right up to finished articles for sale. It includes some industrial and specialised use textiles, conveyor belts, etc. It also encompasses all non-clothing textiles like linen, towels, carpets, etc., regardless as to whether used domestically, commercially or in the public sector.

On the output side, the study has taken all List of Waste codes that are related to textiles⁵. Therefore, industrial and commercial arisings are included, not just the separate textile fractions in municipal waste. In terms of textile content in mixed municipal waste, it is based on waste characterisation results which includes clothing, non-clothing textiles and textile packaging.

In addition, the study has included textiles outside the realm of waste including estimates of data for textiles collected by charities and commercial textile recyclers, as well as textiles sold in the vintage and online reselling sectors.

The project scope essentially reflects much of the definition of textiles used in the EU green public procurement criteria for textile products and services⁶.

Textile impacts

A McKinsey industry report noted that global clothing production has doubled between 2000 and 2014⁷, while their utilisation rate (number of times worn) has decreased dramatically (36%). In Europe, textile consumption was significantly dampened by the last economic recession and only returned to pre-recession levels in 2018 and grew after that⁸. According to the Ellen McArthur Foundation, if growth continues as expected, total clothing sales will reach 160 million tonnes per annum by 2050 – almost three times the current rate.

The term ‘fast fashion’ is used to describe the rapid changing of clothing lines and fashion trends, which promote increased consumption and reduce the life span of clothing. It is estimated that more than half of fast fashion produced is disposed of in less than a year⁹. Furthermore, the textiles industry is reliant on non-renewable resources including oil to produce synthetic fibres, fertilisers to grow cotton, and chemicals to produce, dye, and finish fibres and textiles as well as significant water consumption.

Resource inputs, and the environmental and climate pressures from the textiles system occur in every phase of the fashion industry. An evaluation of supply chain pressures from an EU consumption perspective identifies clothing, footwear and household textiles as the fourth highest pressure

⁵ LOW codes included: 04 02 09, 04 02 21, 04 02 22, 15 01 09, 19 12 08, 20 01 10, and 20 01 11.

⁶ https://ec.europa.eu/environment/gpp/pdf/criteria/textiles_gpp_technical_report.pdf

⁷ McKinsey & Company ‘Style that’s sustainable: A new fast-fashion formula, 2016.

⁸ JRC Interim Report, Research into Circular Economy Perspectives in the management of textile products and textile waste in the European Union, October 2020.

⁹ McKinsey & Company (2016), Style that’s sustainable: a new fast-fashion formula.

category for use of primary raw materials and water (after food, housing and transport). It is rated second highest in relation to impact on land use and the fifth highest for greenhouse gas emissions.¹⁰

The fashion industry today is a clear example of a linear economic model and illustrates the need for a rapid transition to a circular economy in support of responsible and sustainable consumption. One of the most evident impacts of fast fashion is the reduction in clothing utilisation and increase in discarded textiles.

Methods used

The study gathered latest relevant and available data to determine estimates of the current consumption of new textiles and generation of post-consumer textiles in Ireland and to determine status of the current systems used to collect textiles in terms of reuse, recycling and disposal. On the textiles input side i.e. the consumption of new textiles, the main source of information was the Central Statistics Office (CSO), for import and export data, for PRODCOM production data and for summary information on clothing retail sales. On the output side i.e. post-consumer textile streams, a combination of informed estimates and reported data was used. The exact methods and sources used in the study are detailed in chapters 2 and 3.

In addition to gathering data, semi-structured interviews were conducted with relevant stakeholders to the textile industry, both on the consumer side, and on the post-consumer and waste related side.

Interviews were conducted with:

- A luxury retailer's responsible sourcing coordinator
- A clothes designer
- A vintage reseller
- Two online clothes resellers
- A brand planner
- Four major charities: Enable Ireland, Oxfam Ireland, Dublin Simon Community, National Council for the Blind of Ireland Retail (NCBI)
- Office of Government Procurement (OGP)
- Killarney Hotels Sustainability group
- The Southern, and Eastern and Midlands Regions waste management offices
- Two local authority Environmental Awareness Officers
- A design consultant & adviser
- Irish Business and Employers Confederation (Ibec)

¹⁰ European Environment Agency (EEA), 2019. Textiles in Europe's circular economy, EEA Briefing Note.

The views of these stakeholders were gathered on the improvements needed for the existing collection and management of post-consumer textiles within Ireland to support a circular textiles system. A summary of the stakeholders' views to improve existing textile systems is presented in Chapter 4 and these insights have also informed the recommendations from this study. A full compilation of the views of the stakeholders interviewed as part of this study are presented in an ancillary document.

Though efforts and approaches were made to ensure that a representative range of stakeholders were consulted, given the small scale and short length of the research project there are some information gaps. Approaches were made to some commercial textile recyclers, as well as to clothing retailers in the non-luxury sector which did not result in interviews for these sectors.

2. New Textiles Consumption in Ireland

Import and export data

Detailed information has been obtained from the CSO on imports and exports of new textiles and textile products for 2019 and 2018, in both economic value and tonnes. As a country we import 292,000 tonnes of new textiles, clothing and footwear each year. This is worth over €3 billion per annum. Exports are just under €0.5 billion and 34,000 tonnes per annum. The summary data for 2019 is shown in Table 2.1.

Table 2.1: Ireland's imports and exports of textiles, 2019 (Source: CSO)

SITC ¹¹	Description	Imports 2019		Exports 2019	
		€	tonnes	€	tonnes
65	Textile yarn, fabrics, made-up articles & related products	€541,393,895	102,098	€157,884,298	18,900
84	Articles of apparel; clothing accessories	€2,038,590,208	162,135	€241,670,665	13,544
85	Footwear	€470,771,053	27,770	€38,437,390	1,349
	Total	€3,050,755,156	292,003	€437,992,353	33,793

The overwhelming majority of imported textiles is clothing as shown in Table 2.2. Some portion of the imported textiles/textile products category is commercial and industrial use, e.g. fiberglass, ropes, conveyors. However, this is relatively small (less than 10% for both value and tonnage).

Table 2.2: Ireland's top 80% of categories of imports of textiles, 2019 (Source: CSO)

Top categories: 80% of the tonnage of imports	Imports €000	Tonnes	Value %	Tonnage %
Clothing (ex. safety gear)	2,030,161	161,333	67%	55%
Footwear	470,771	27,770	15%	10%
Various fabrics	137,238	28,898	4%	10%
Carpets and coverings	68,086	22,356	2%	8%
			88%	83%

There is a significant increase from 2018 to 2019 in terms of imported tonnes of clothing for Ireland which warrants further investigation (see Table 2.3). While the monetary value also increased, it was not to the same extent.

¹¹ SITC, standard international trade codes: 65, 84 and 85.

Table 2.3 Imports and exports of clothing 2019 and 2018, tonnes and Euros, Source: CSO

Description	Imports	
	2019	2018
SITC 84: Articles of apparel; clothing accessories	€2.04 billion	€1.96 billion
	162,135 tonnes	105,470 tonnes

Domestic production

PRODCOM is an annual CSO survey of the value and volume of products manufactured by industrial enterprises in Ireland and sold during the year. With a total worth of €375 million for 2019 for Irish textile manufacturing, Figure 2.1 shows a breakdown of value of products. Approximately 6% is treated as confidential.

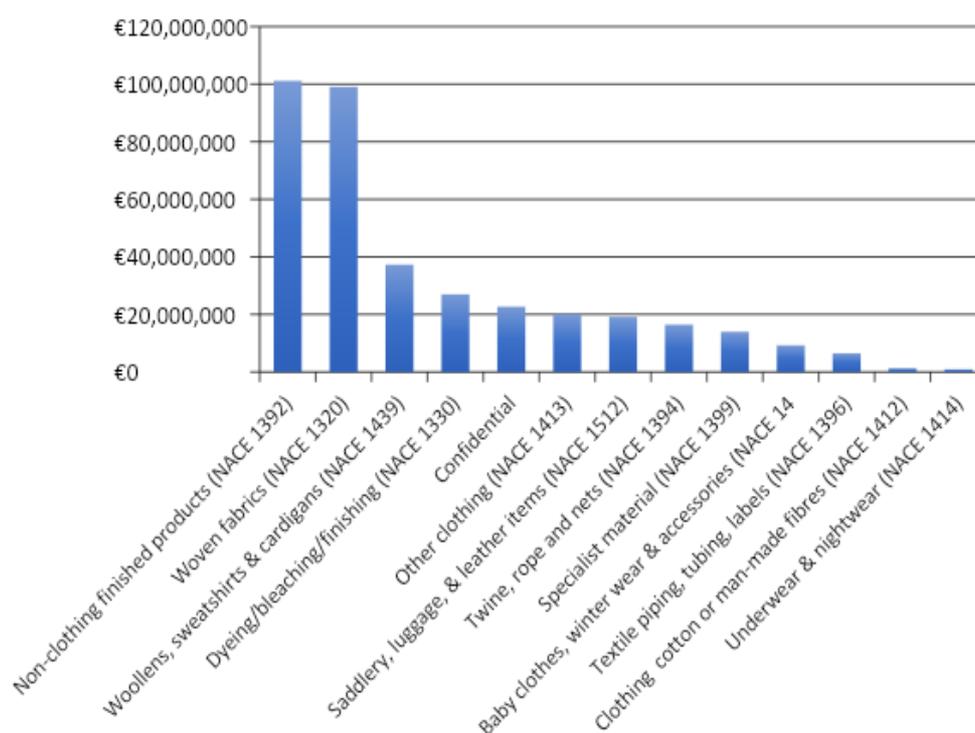


Figure 2.1 Breakdown of 2019 PRODCOM NACE codes by value for main categories

Figure 2.1 shows the detail for the largest categories. The two largest textile manufacturing sectors in terms of value are non-clothing, with non-clothing finished products (linen, curtains, blankets, etc.¹²) at just over €100 million and woven fabrics¹³ at just under €100 million. Together, these two categories make up over half of the overall value of the domestic textile manufacturing sector.

There is information in some cases on the associated quantities, with the units varying depending on the product, but often there are confidential sub-categories within a 4-digit NACE code. For 27% of the total value of the goods produced, there is information on either kg or number of items. Thus, using a

¹² Non-clothing finished products, NACE 1392, includes blankets, bed-linen, table-linen, curtains, blinds, bedspreads, bedding and so forth.

¹³ Woven fabrics, NACE 1320, includes the weaving of various types of fabrics such as wool, silk, synthetic, etc.

standard factor¹⁴, this 27% of the total value of Irish textile manufacturing corresponds to a very crude estimate of approximately 5,000 tonnes of textiles and materials.

Net consumption of textiles

From the data presented above, net consumption of textiles in Ireland is 263,000 tonnes in 2019 - i.e. imports plus production minus exports for the country. Based on this data, it is estimated that the per capita consumption of new textiles in Ireland in 2019 is 53 kg per person per year.

International comparison

The European Commission's Joint Research Centre (JRC) has published a report on EU Textile flows¹⁵. This work is based on CN codes – a nomenclature used in export declarations and in statistical declarations on internal trade of the European Community. This work calculates an EU-27 consumption of clothing and certain household textiles at 12.3 kg per capita in 2018. Ireland's consumption of clothing and certain household textiles at 20.3 kg per capita in 2018 is significantly higher than this average for the corresponding set of CN codes (see Table 2.4).

Table 2.4: Consumption of new textiles, Ireland & EU-27, in kg/person/year (Sources: CSO, JRC)

CN 4-digit codes	Product grouping	Ireland (2018)		EU-27 average (2018)	
		Consumption (tonnes)	Kg /person / year	Consumption (kilotonnes)	Kg / person / year
Clothing					
6101 + 6102 + 6201 + 6202	Overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets etc.	6,940	1.4	419	0.95
6103 + 6104 + 6203 + 6204	Suits, ensembles, jackets, blazers, trousers, bib and brace overalls,	24,209	4.9	1 408	3.19
6105 + 6106 + 6205 + 6206	Shirts and blouses	6,802	1.4	314	0.71
6107 + 6108 + 6207 + 6208 + 6212	Underwear, nightshirts, pyjamas, bathrobes, dressing gowns plus bras, corsets etc.	7,655	1.5	317	0.72
6109	T-shirts, singlets and other vests	9,850	2.0	526	1.19
6110	Sweaters, cardigans, waistcoats	9,648	1.9	571	1.30
6111 + 6209	Babies clothing	2,376	0.5	106	0.24
6112 + 6211	Tracksuits, ski-suits and swimwear	2,777	0.6	114	0.26
6113	Garments covered or impregnated with plastics	167	0.03	7	0.02
6115	Pantyhose, tights, stockings and socks	4,820	0.97	264	0.60

¹⁴ 0.5 kg per item of clothing (ICSA value).

¹⁵ JRC Interim Report, Research into Circular Economy Perspectives in the management of textile products and textile waste in the European Union, October 2020.

6114 + 6116 + 6117 + 6213 + 6214 + 6217 + 6215 + 6216	Handkerchiefs, ties, shawls, scarves, gloves and other	3,893	0.78	207	0.47
6210	Non-woven garments	5,562	0.72	119	0.27
Household textiles					
6301	Blankets and travelling rugs	2,463	0.5	117	0.27
6302	Bed linen, towels and tablecloths	12,694	2.6	635	1.44
6303 + 6304	Curtains and drapes and other interior furnishings	2,974	0.6	288	0.65
Total		100,830	20.3	5 411	12.3

The JRC report also includes data for the consumption of new textiles from studies carried out by individual countries. The project notes that there is no overarching methodology for calculating consumption of new textiles for countries, and so practically every country has a different scope and methodology. Consumption of new textiles (clothing and certain household textiles) is reported as ranging from 6.1 kg per capita per year (Latvia) to 22.8 kg per capita per year (Italy). A value for the UK from a separate report¹⁶ is 26.7 kg per capita per year (based on 2010 data). These values are summarised in Table 2.5 below, and differences also noted in terms of scope, where known.

Table 2.5: Consumption of new textiles, other country studies, kg/person/year. (Sources: CSO, JRC, EC)

Country	Kg / person / year
United Kingdom (2010) – include shoes	26.7
Italy (2018)	22.8
Germany (2018) includes shoes, leatherware, and an estimate for internet, oversea purchases and illegal imports	20.7
Ireland (2018)	20.3
Netherlands (2018)	17.7
Denmark (2016)	15.0
Finland (2012)	13.2
Sweden (2013)	12.6
Estonia (2018)	12.4
France (2018) – household only, includes shoes	9.5
Lithuania (2018)	7.0
Czech Republic (2013)	6.6
Latvia (2018)	6.1

¹⁶ Guidance for separate collection for municipal waste, European Commission, April 2020.

Retail sales

During the study, the most recent CSO data for the clothing retail industry is for 2017, showing the clothing retail industry in Ireland has a turnover of over €4.1 billion with over 3,000 businesses employing in excess of 32,000 people. In terms of online purchasing, Retail Ireland noted in 2017 that 50% of Irish consumers shop online, and that 75% of online sales in Ireland go to foreign websites¹⁷. However, this includes all online purchases including travel, accommodation, etc. and not just clothing. More recent CSO information from 2019 shows that 73% of Irish consumers shopping on-line are buying or ordering their goods from national sellers¹⁸. Textiles entering the country through this route are not captured by national trade statistics and are likely to represent a significant additional material flow - though this has not been quantified.

¹⁷ Retail Ireland (2017) [https://www.retailireland.ie/Sectors/RI/RI.nsf/vPages/Retail_in_Ireland~retail-at-a-glance/\\$file/Retail's+positive+contribution+to+Irish+economy.pdf](https://www.retailireland.ie/Sectors/RI/RI.nsf/vPages/Retail_in_Ireland~retail-at-a-glance/$file/Retail's+positive+contribution+to+Irish+economy.pdf)

¹⁸ <https://www.cso.ie/en/releasesandpublications/ep/p-isshh/informationstistics-households2019/internetpurchases/>

3. Post-consumer Textile Streams in Ireland

Overview of Post-consumer textiles

Post-consumer textiles are textiles that consumers do not require anymore and have decided to discard such as clothing, footwear, towels, bedlinen, upholstery etc from household, commercial, industrial and public service settings. Total post-consumer textiles in Ireland is estimated to be around 170,000 tonnes per year which includes clothing, footwear and other textile products. The main source of post-consumer textiles is in the residual waste stream and the vast majority of this is processed via waste-to-energy plants or landfills. Textiles collected in commercial textile banks and via collections (e.g. school/sports club collections) is next in terms of significance. Most of this is sent overseas for reuse, and whether this is ultimately reused is not known. The third largest source of post-consumer textiles is that which is donated to charity, either through direct donations or via charity owned textile banks. Reselling in the vintage sector (both in shops and online) and via online platforms account for an estimated 1% of the total amounts of post-consumer textiles. A summary of the sources of post-consumer textiles in Ireland is presented in Figure 3.1.

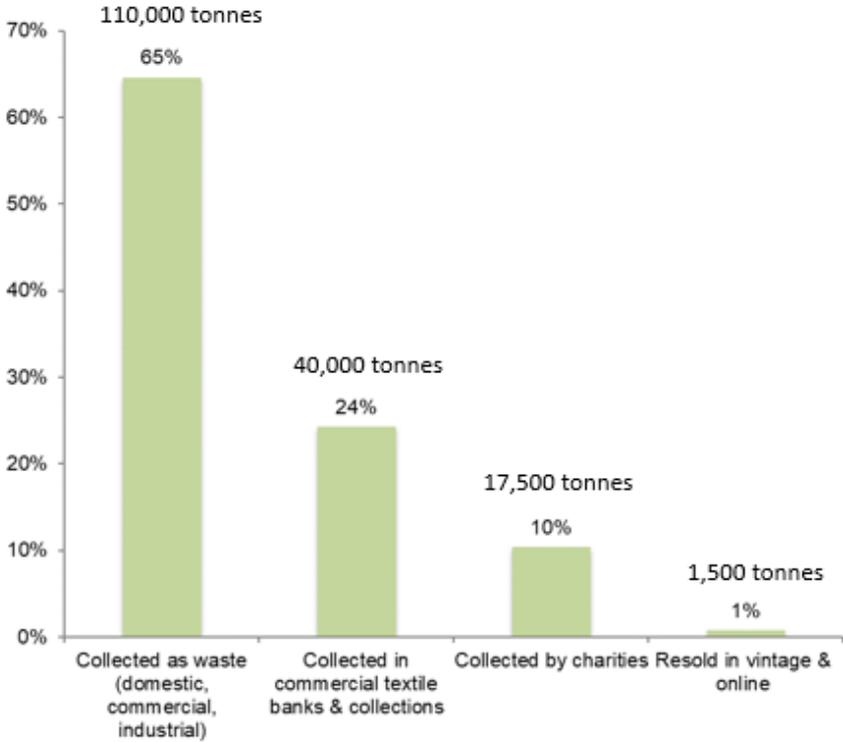


Figure 3.1: Estimated post-consumer textile streams in Ireland

Of the total post-consumer textiles generated each year in Ireland it is estimated 65% are collected as waste and processed via waste-to-energy plants or landfill (not including transfers of textiles from permitted sites to commercial recyclers estimated at 1,500 tonnes per year) while 34% are

separately collected¹⁹ mainly via textile banks and through direct donations to charity shops. By comparison, other reported EU collection rates range from 4% in Latvia to 75% in Germany, the median being 30%²⁰. (Note there’s some uncertainty in the German figure). In terms of reuse of post-consumer textiles each year 21% are exported overseas and 6% are sold for reuse within Ireland while around 9% of total post-consumer textiles go for recycling as rag, fibre, etc.

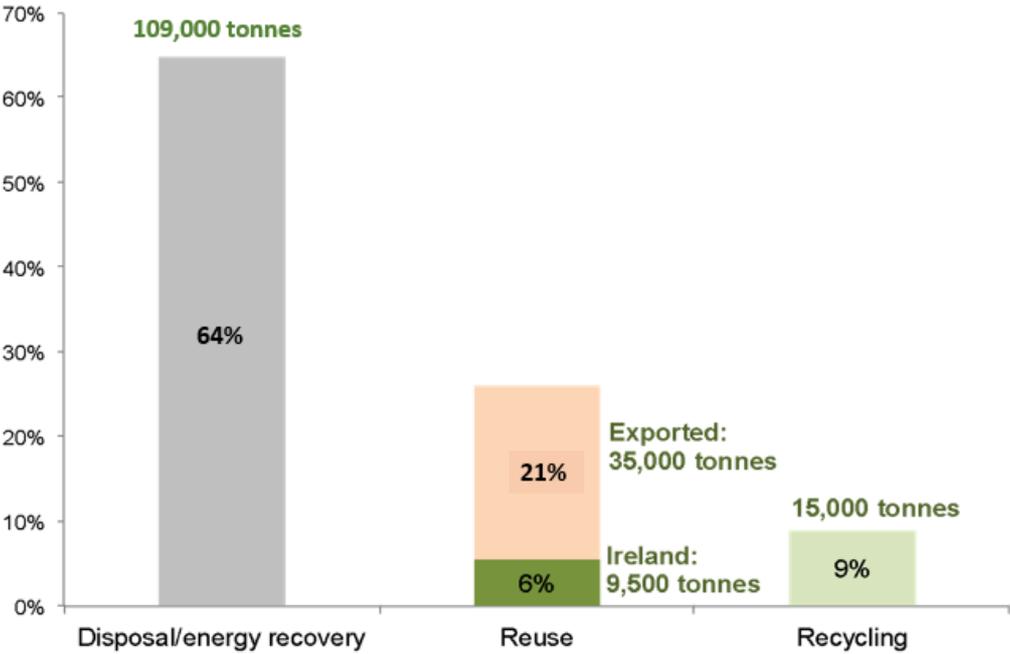


Figure 3.2: Estimated fate for post-consumer textiles in Ireland

The following sections provide context and discussion around the various post-consumer textile streams and post-consumer flows of this material are illustrated in a Sankey diagram in Figure 3.3.

Household kerbside waste collection

The household bin is estimated as the single largest source of post-consumer textiles in Ireland. Clothes and other textiles in household waste collected via kerbside collection is estimated at 64,000 tonnes per year. In the residual bin, clothing dominates with almost 37,000 tonnes per year, followed by around 20,000 tonnes per year of other textiles. In the recycling bin there is also an estimated 7,000 tonnes per year of clothing and other textiles. There is also an additional amount of over 3,000 tonnes per year of textile packaging across the household bins. Thus, in total across all kerbside household waste bins, textiles consist of an estimated 67,000 tonnes per year (clothing, other textiles and textile packaging).

¹⁹ Note the revised Waste Framework Directive defines ‘separate collection’ as meaning collection where a waste stream is kept separately by type and nature so as to facilitate a specific treatment.

²⁰ DG ENV, Separate Collection Guidance, April 2020.

This estimate has been arrived at using information available during the study from EPA Waste Statistics on the amounts of waste collected via household kerbside collection along with composition information from the EPA's national waste characterisation report²¹. Skips (domestic and commercial) are another potential source of waste textiles. Currently there is no waste characterisation data available to estimate the textile quantities disposed of via skips.

Commercial textile banks & collections

The next most significant source for post-consumer textiles in Ireland is that collected and processed by what are widely known as commercial textile recyclers. The textile recycling industry estimates 50,000 tonnes²² are processed annually in Ireland. This is mainly collected via textile banks, but also through collections like community and club collection days, and in addition handling the portion of charity shop donations that are not sellable in Ireland. It is estimated that there are of the order of 2,500 commercial textile banks in Ireland, though the exact figure is currently uncertain²³.

There are at least five commercial textile recyclers operating in Ireland. The operation of textile banks is dominated by three main operators, one of which is based in Northern Ireland. There is little processing in Ireland of the post-consumer textiles collected and this material is generally baled and exported, primarily to African countries²⁴. Textile banks are sited either at privately-owned locations (e.g. supermarket car parks, garages, community centres, GAA pitches) or in public areas (both with, and sometimes without, local authority consent). Some will have certificate of registration status, but not all.

The textile recycling industry indicates that 70-75% of the textiles they process is re-worn through exporting²⁵. The biggest market that the industry exports to is West Africa. It is reported that the Eastern European market has become more selective recently, but that remains an important route.

The industry also estimates that 1% is disposed of via conventional waste disposal routes (this corresponds to 500 tonnes per year), with the remaining portion recycled as rags, fibre, etc. (corresponding to 15,000 tonnes per year). Recycling includes pulping for industry including carpet, mattress, soundproofing and other industrial applications.

The Charities Regulator issued guidance in March 2021 on the issue of clothing collections. This guidance seeks to address concerns raised by the public in relation to stickers/bags seeking donations

²¹ EPA Household Waste Characterisation Campaign Final Report November 2018.

²² Estimate supplied verbally, via the Southern Region Waste Management Office, on foot of a discussion with two major textile processors in Ireland.

²³ Based on discussions with a number of actors in the textile reuse sector.

²⁴ Information from a regional waste management representative, supplemented by charity respondents.

²⁵ Estimate supplied verbally, via the Southern Region Waste Management Office, on foot of a discussion with two major textile processors in Ireland.

²⁵ Based on discussions with a number of actors in the textile reuse sector.

of clothing and other unwanted items. The regulator notes that many of these collectors are not registered charities and highlights the need to ensure that the benefit from donations that are intended to go to a charitable cause does occur.

Charity, vintage & online reselling

The charity sector collects an estimated 17,500 tonnes per year of textiles in Ireland²⁶. The sector primarily sources textiles via direct donations to charity shops. There is also collection via charity operated textile banks for five of the charities: NCBI, Enable Ireland, SVP, Liberty Recycling and Oxfam Ireland. These are on private land, mainly in supermarket car parks. In terms of amounts collected via such banks, three of the charities between them collect about 2,000 tonnes of textiles each year from around 400 banks²⁷. Some of the charities run take-back partnerships with commercial retailers. Amounts collected via this route are relatively small at present and are included in the overall charity shop figure. For example, Enable Ireland has collected some 1,400 tonnes via TK Maxx in-store banks in total since the start of their partnership, which has been running for several years. Of the 17,500 tonnes per year received by the charity sector, approximately 8,500 tonnes are sold in charity shops in Ireland and approximately 9,000 tonnes are sold to commercial textile recyclers to be either exported overseas or recycled as rag, fibre, etc.

Estimates have been made for the vintage sector and for reselling of clothes via on-line platforms. This has been prepared using industry information on sales and scaled up for estimated market share for the sectors as a whole. Based on interviews, the vintage sector is estimated as 500 tonnes per year sales in Ireland and on-line reselling as 700 tonnes per year.

In total, textile reuse within Ireland (charity, vintage and on-line reselling) corresponds to 2 kg per capita per year (likely to be primarily clothing but some footwear and other textiles also possible). This compares to data recently gathered by a JRC textiles project²⁸, showing Ireland is at the upper end of the range for European countries for which data has been collected – ranging from < 0.5 kg/capita in Austria and Germany, to > 2.5 kg/capita in Lithuania.

Commercial and industrial waste collection

There are textiles contained in kerbside waste collections from the non-domestic sector, namely commercial and industrial facilities, and this is estimated to be around 18,000 tonnes per year. This is dominated by other textiles (i.e. not clothing) at over 12,000 tonnes per year. Clothing constitutes

²⁶ This estimate has been made by the ICSA, the Irish Charity Shops Association, based on information from their members (for 445 shops representing a market share of 83%) and has been scaled up to account for all charity shops in Ireland.

²⁷ Via ICSA from their members.

²⁸ JRC Interim Report, Research into Circular Economy Perspectives in the management of textile products and textile waste in the European Union, October 2020.

around 5,000 tonnes per year. There is also an additional estimate of over 8,000 tonnes per year of textile packaging in non-household bins - this is displayed in the overall flow diagram along with textile packaging from household kerbside sources. Thus, in total across all kerbside non-household waste bins, textiles comprise of an estimated 26,000 tonnes per year arisings. This goes for disposal or energy recovery.

This estimate has been arrived at using information available during the study from EPA Waste Statistics on collected amounts of waste via non-household kerbside collection along with composition information from the EPA's national waste characterisation report²⁹.

In addition to such kerbside collections from non-household sources, there is also 15,000 tonnes per year of clothes and textiles collected "from the source where generated"³⁰. This is non-household sources and is likely a combination of commercial and industrial sites. This was dominated by clothing at 10,000 tonnes per year, the rest being other textiles. It excludes materials coming from civic amenity sites or other such facilities. It is based on collection permit returns to the NWCPO. There is the potential that there is some overlap between this value and the estimate for commercial textile recyclers, as the exact sources and destinations are not known for this summary data. There is also uncertainty in the figure itself, as the split in data in the collection permit returns to the NWCPO between "waste collected from a facility (e.g. civic amenity site, waste transfer station)" and "from the source where generated", varies significantly from year to year for the waste streams in question.

Civic amenity site textile banks, and other waste permitted facilities

Textile banks in civic amenity sites are only a small fraction of the overall textile bank numbers across the country. The figures for transfers of textiles from permitted sites are of the order of 1,500 tonnes per year³¹. Information from EPA Waste Statistics indicates that all such material went to textile recyclers in 2018 (assuming same for 2019), with a split of 97% reuse, and 3% disposal for civic amenity site textiles. Civic amenity site textile amounts are only a fraction of that handled in total by commercial textile recyclers (about 3% of estimated total throughput), hence used the recyclers estimate for 1% going for disposal as outlined above.

There was some additional NWCPO information back from collection permit holders that cannot really be used as a cross-check, as the exact source being a licensed or a permitted site is not apparent in summary form.

²⁹ EPA Non-household Waste Characterisation Campaign Final Report 2018.

³⁰ This estimate has been made based on data obtained from the NWCPO.

³¹ 2019 NWCPO data. Similar value in 2018 via EPA Waste Statistics of 1,300 tpa.

Licensed waste sites

EPA licensed waste sites report receiving of the order of 500 tonnes per annum of textile waste, while transferring out under 200 tonnes per year³².

Illegal dumping and litter

EPA Waste Statistics commissioned a waste characterisation of litter³³. Results show that textile wastes represent 2.5% of the total content of litter bins. Litter bin and street sweeping amounts nationally show that these sources account for less than 700 tonnes of textiles per year.

There is mention from certain stakeholders of some illegal dumping or fly tipping of bulky items such as duvets, but this is likely relatively small in terms of overall numbers. The most recent data for total fly-tipped waste in Ireland is about 10,000 tonnes per year³⁴. The composition of this waste is unknown, however if it has a composition similar to the residual domestic bin, there would be of the order of 1000 tonnes per annum of fly-tipped textiles.

³² Information received from EPA Waste Statistics for 2018.

³³ EPA Litter Waste Characterisation Final Report 2019.

³⁴ Ibid.

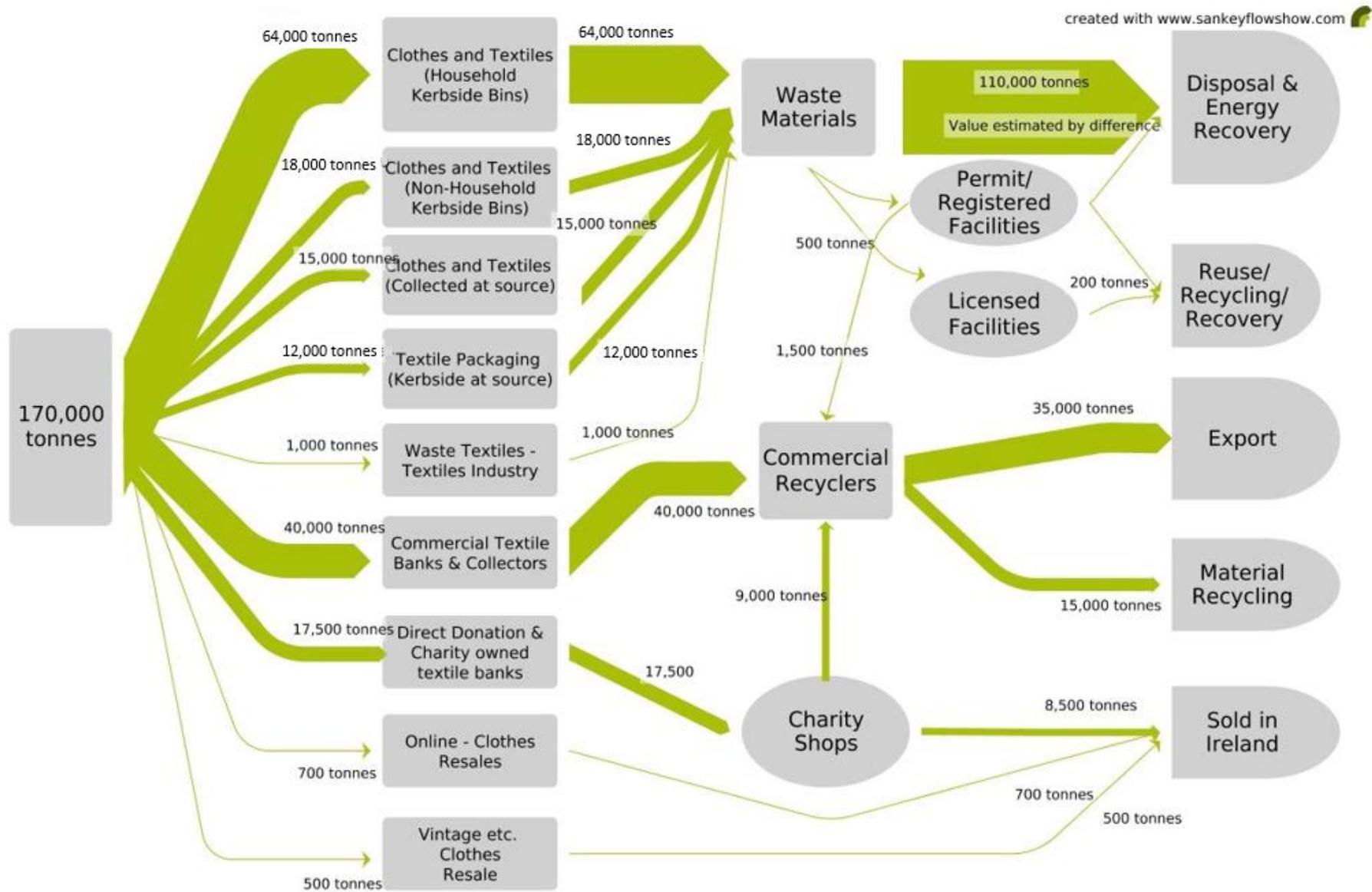


Figure 3.3: Summary of post-consumer flows of textile outputs in Ireland

4. Circular Economy Actions

This section includes an examination of existing good practices, both internationally and locally, to reduce the environmental impact of textiles in line with the waste hierarchy. A variety of solutions are provided as a reference point to be used when building Ireland's vision for circularity in textiles. While the best practices are often localised by nature, the circular business models can be scaled up or made applicable to the Irish context. This section also includes a summary of the improvements needed for the existing textile systems identified by relevant stakeholders to the Irish textile sector as part of the study.

Prevention

Design is crucial for achieving circular economy in textiles and clothing, with design requirements ensuring durability and longer lasting items that can ultimately remain in use and circulation for longer. Improved eco-design criteria are key areas identified in both the EU Circular Economy Action Plan³⁵ and the latest JRC interim report on textiles³⁶. Prevention is the most sustainable of practices and consumer education and awareness programmes can be used to promote less consumption of clothing and care and longevity of clothing. Initiatives to reduce post-consumer textiles can be implemented to support the reuse of clothing by consumers through swapping, donation and renting strategies. In Ireland, Nu Wardrobe³⁷ provides a platform for peer-to-peer clothes swapping in Ireland and the UK.

Reuse

From an economic and environmental point of view, the optimal practice is the re-use of clothing and textiles before recycling. In this pathway, clothes are directly reused and no additional costs for collection, segregation or recycling are required. Collaborations between social actors and retailers exist in Europe. In Ireland, there are collaborations between ICSA members and retailers such as between Enable Ireland and TK Maxx, and between SVP and Brown Thomas.

Reselling of clothes by individuals is widespread through active participation in online marketplaces on Facebook, eBay, DoneDeal etc. In addition, new businesses have been developed to re-sell quality or popular branded clothes, including outlets such as Siopella.

Repair & Repurpose

There are many examples of companies repairing damaged clothing or resizing articles as an alternative to disposal. Ireland has a long-established local network of clothing repair businesses ranging from local independent repair businesses to the nationwide chain of Zip Yard stores. Many of

³⁵ The European Commission's Circular Economy Action Plan from March 2020.

³⁶ JRC technical interim report (2020) Research into circular economy perspectives in the management of textile products and textile waste in the European Union.

³⁷ <https://www.thenuwardrobe.com/>

these businesses have also expanded their business model into 'upcycling' by offering services to restyle or enhance clothing that is undesired but wearable.

In addition, repair workshops are provided by the Rediscovery Centre, namely Rediscover Fashion, one of four social enterprises based in the National Centre for Circular Economy in Ireland. Other local initiatives are also operating across the country such as the Roscommon Women's Network which provides trainees with skills in sewing, pattern making and cutting skills as part of the CycleUp project.

Collection

The Helsinki Metropolitan Area Reuse Centre Ltd has developed the first self-service donation collection point for household items, making it convenient for textiles to be donated along with other household items. Donation walls are located in major shopping centres to encourage citizens to donate and support the circular economy. Lessons learned and future scaling of this initiative can be found within the Interreg policy learning platform.

Recycling

The textile industry only recycles 13% of their total material input and only 1% is recycled into new clothes. Most is downcycled into a final product that will not be reused such as insulation material, wiping cloths, and mattress stuffing³⁸. Barriers to wider uptake of recycling includes the quality of today's garments, which are made of poor materials that are difficult to recycle. Furthermore, the textile's composition (a mixture of fibres and chemicals) makes it even further complicated to separate.

Fibersort is a technology that can automatically sort large volumes of mixed post-consumer textiles by fibre type. This near-infrared technology could allow an increase in the recycling rate with the ability to detect and verify mixtures in the composition of textiles. However, Fibersort is not yet used on a large scale as the cost of the process is still very high, though it is used in The Netherlands.

Scandinavia's first large scale textile waste processing plant, Paimion Kehitys in Finland³⁹, is set to open in February 2021 capable of processing 12,000 tonnes of textile waste annually (amounting to 10% of Finland's textile waste). Beyond Europe, the online fashion retailer ASOS is working with an ethical clothing manufacturer from Kenya 'SOKO Community Trust' on the Kujawa Initiative which uses off cuts to make upcycled hygiene products to ensure young women can participate in education for longer.

³⁸Henzen & Pabian (2019) Increasing Consumer Participation in Textile Disposal Practices: Implications Derived from an Extended Theory of Planned Behaviour on Four Types of Post- Consumer Textile Disposal.

³⁹ Ecotextile (2020) Textile recycling plant to open in Finland

<https://www.ecotextile.com/2021042027671/materials-production-news/infinite-fiber-to-build-220m-factory-in-finland.html>

Eco-labels and Circularity

Eco-labels have a dual function of quality assurance and practical communication tools. Though many labels do not yet signal the circularity of an item, there can be crossovers in terms of criteria used on a label and the relevance to circularity. According to the Nordic Swan ecolabel and the EU ecolabel, the following criteria can be considered ⁴⁰:

- Requirements for renewable, recycled and sustainable raw materials
- Strict chemical requirements
- Requirements for reduced use of resources and energy
- Quality requirements and lifetime
- Requirements for product design, dismantling and repairability
- Requirements for optimum waste and resource handling

The most recent JRC Textiles report⁴¹ informs a revision of the Nordic Swan ecolabel is being undertaken to look at new criteria which specifically aim at promoting the circular economy and include:

- All synthetic fibres must be either based on recycled or bio-based material
- Regenerated cellulose fibres must be recycled or certified sustainable
- Recycled fibres must document test requirements for harmful substances
- Durability: new wear resistance requirement for selected textile products with differentiated requirement level e.g. furnishing fabrics, professional work wear and outdoor wear in general
- Design for recycling of packaging: design requirements for recycling of primary packaging
- Unsold textiles: New requirement for both brand owner and textile manufacturer, that unsold textiles must not be sent for incineration or landfill.

Stakeholder Views to Improve Existing Textile Systems

A range of stakeholders (identified in Chapter 1) in the Irish textile sector shared their views during interviews conducted as part of this study to identify improvements needed for the existing collection and management of post-consumer textiles and support a circular textiles framework within Ireland including:

- Looking at more sustainable products, better models of operation, more use of alternatives like renting and reselling, achieving recycling of mixed textile fibres, etc.
- Capturing more of the textiles currently exported overseas for reuse locally and expanding activity in terms of sorting, reuse, repair, sharing, upcycling, downcycling and recycling.

⁴⁰ Developed from <https://www.ecolabel.dk/en/why-choose-ecolabelling/circular-economy/10-strengths>

⁴¹ JRC technical interim report (2020) Research into circular economy perspectives in the management of textile products and textile waste in the European Union.

- Maximising the potential reuse of textiles by improving the collection options available for consumers in terms of where to put used textiles – depending on its quality / condition.
- Looking at introducing more oversight and transparency in operation of textile banks.
- Looking at the effectiveness of different collection methods, including separate kerbside collection of post-consumer textiles.
- Developing closer links between the reuse sector and the retailers and the local authorities in terms of textile collections.
- Ensuring textile retailers have a responsibility for post-consumer textiles.
- Introducing mandatory green public procurement measures for textile goods and services, extending also to second hand textiles.
- Supporting the involvement of social enterprises and businesses to start/expand into the area of sustainable design, repair, vintage, on-line reselling, rental, sorting, recycling, etc.
- Supporting more reuse of textiles by people through different avenues – online, vintage, charity sector, rental.
- Conducting a sustained awareness campaign across the textiles sector regarding the current widespread culture of buying many, cheaper new items which are rapidly discarded.
- Considering fiscal measures and supports such as reducing or removing VAT on second hand goods, on repair, and on upcycling; and introducing tax relief for second hand purchases in charity shops.
- Examining how data may be obtained and improved in terms of post-consumer textile flows.

5. Conclusions & Recommendations

Nature & Extent of New & Post-Consumer Textiles

The current consumption of new textiles and management of post-consumer textiles in Ireland highlights a linear textile economic model that is unsustainable as identified by the study's findings:

Consumption of new textiles

- In 2019, the net consumption of new textiles in Ireland was 263,000 tonnes (i.e. imports plus production minus exports for the country). This corresponds to 53 kg of new textiles being consumed per person per year. Over half of the amount of new textiles consumed in Ireland is clothing.

Post-consumer textiles

- The total post-consumer textiles in Ireland are estimated to be around 170,000 tonnes per year which includes clothing, footwear and other textile products. This corresponds to an estimated 35 kg of post-consumer textiles being generated per person per year in Ireland which is higher than the reported EU average of 26 kg per person per year.
- The main source of post-consumer textiles in Ireland is in the residual waste stream. This is estimated as 110,000 tonnes per year which is 65% of total post-consumer textiles generated in Ireland.
- The second main source is the textiles collected and processed by commercial textile recyclers via their textile banks and through collections e.g. community and sports collection days. This is estimated as 40,000 tonnes per year which is 24% of total post-consumer textiles in Ireland.
- The charity sector is the third largest source of post-consumer textiles in Ireland with an estimated 17,500 tonnes per year which is 10% of the total post-consumer textiles generated in Ireland.

Collection of post-consumer textiles

- It is estimated that 65% (around 110,000 tonnes) of total post-consumer textiles generated in Ireland each year are collected as waste from household, commercial and industrial sectors and nearly all are processed via waste-to-energy plants or landfill. Of this, an estimated 67,000 tonnes of textiles are from the household waste stream (clothing, other textiles and textile packaging).
- It is estimated that around 34% of the total post-consumer textiles in Ireland each year are separately collected. This is primarily through commercial textile banks and collections, and secondly through charity shop direct donations. By comparison, the median EU separate

collection rate of post-consumer textiles is reported as 30%. It is clear there is scope for further separate collection of post-consumer textiles in Ireland.

Reuse & recycling of post-consumer textiles

- Of the total post-consumer textiles generated in Ireland, it is estimated 27% (44,500 tonnes) are sold for reuse and 9% (15,000 tonnes) go for recycling as rag, fibre, etc. Of the reused textiles, 6% are sold for reuse in Ireland while 21% are exported overseas and whether this is ultimately reused is not known.
- The charity shop sector plays a significant role in the sale of around 8,500 tonnes of post-consumer textiles. A further 9,000 tonnes of the post-consumer textiles donated are not resaleable in the charity shops and are sent to commercial textile recyclers.
- Vintage and online reselling of clothes are estimated as 1% of the total post-consumer textiles.

Circular Economy Recommendations

The findings of this study show that the existing textile systems in Ireland need to be developed to facilitate increased separate collection, reuse and recycling of post-consumer textiles and more sustainable consumption of textiles. The study findings including insights from stakeholder interviews identify the following initial recommendations to set Ireland on the path towards a circular textiles framework:

- There is a pressing need to obtain better data on flows and the fate of post-consumer textiles. This study represents an initial estimate for post-consumer textile flows in Ireland and there is some significant uncertainty associated with some of the figures. In addition, since donations away from “waste” sites like civic amenity sites are (rightly) not classified as waste, it does indicate significant uncertainty about the amounts being collected this way.
- Waste prevention and sustainable consumption must be introduced in this sector. This could include measures such as green procurement; reducing fashion-driven personal consumption; increasing reuse; facilitating repair; and at end of life, favouring reuse/recycling over disposal.
- Targeted educational campaigns are required to raise awareness for the public on sustainability issues as raised in this report.
- Separate collection of textiles in Ireland needs to be significantly improved, particularly at the domestic level which is the major source at around 67,000 tonnes per year (clothing, other textiles and textile packaging) in the municipal waste stream. This should be underpinned by better information for the public on textile recycling.

- In conjunction with improved collection methods, there is also a need to locally develop capacity and outlets to manage post-consumer textiles. For example, there is a need to explore strategies to maximise sales via existing outlets, as well as upcycling, downcycling and recycling opportunities.
- Increased reuse within Ireland will benefit Ireland's skill profile, create opportunities for training and employment, and in the longer-term foster innovation in circular economy design.
- Additional regulation of textile banks should be considered – potentially through a code of conduct operated by the charities regulator (proposed in Charities Regulator guidance issued in March 2021 on the issue of clothing collections).
- International best practice examples are useful and provide guidance, however, local pilot-projects are required to understand how novel measures might be suited to the Irish context.

Going forward, the findings and recommendations from this study will inform future consultations and measures identified in Ireland's Waste Action Plan for a Circular Economy to support the requirement for separate collection of textiles by 2025 and to improve circularity in textiles in Ireland. For both textiles that are 'waste' and textiles that are not waste, as Ireland moves towards the circular economy model, it is important that the flows of all post-consumer textiles are understood.