



RECOMMENDATIONS and GOOD PRACTICES for LOCAL USED TEXTILE MANAGEMENT

Study report
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EXECUTIVE SUMMARY

Recommendations and good practices for local used textiles management provides an overview of recommendations and good practices on textile re-use and textile waste management that could be identified in the literature. It is based on a study commissioned by Brussels Environment to prepare for the upcoming mandatory selective collection of textile waste in 2025.

**IN MANY TERRITORIES,
USED TEXTILE COLLECTION
MOSTLY FOCUSES ON
RE-USABLE FRACTIONS,
OPERATED BY
SOCIAL ECONOMY
ORGANISATIONS**

STATE OF THE ART AND CURRENT CHALLENGES REGARDING TEXTILE RE-USE AND TEXTILE WASTE

One of the first key challenges when investigating the end-of-life of textile products is the **general lack of data**. The management of used textile is operated by many different players who do not necessarily report the collected quantities. Few European countries have implemented sorting obligations or an Extended Producer Responsibility system (EPR), which also explains the lack of consolidated data. If some territories can be identified as frontrunners, there are less possibilities to benchmark local or regional performances than with other waste fractions.

In many territories, used textile collection mostly focuses on re-usable fractions, operated by social economy organisations. In France, the collection schemes encompass all textiles, including the non-re-usable ones (sometimes referred as “textile waste”, even though definitions and terminologies vary among the Member States), due to the EPR system implemented in 2007. In other countries, there seems to be a growing

trend of collection schemes aiming to collect all used textiles, especially in Denmark and the Netherlands.

There are various barriers limiting the circular management of textiles. As the (used) textile market is mostly global, these barriers are common to the different European territories:

- **The decline in quality of the collected textiles**, which limits the possibilities of re-use and reduces the value of the used textiles collected.
- **Competition** in the collection for re-use **with online exchanges or sales platforms**.
- **Competition of “fast fashion” products with second-hand textiles**.
- **Technical barriers for sorting and recovery:** lack of sorting capacity for recycling, lack of recycling routes with high added value, lack of eco-design for textile products for recycling.
- **Economic barriers for sorting and recovery**, linked to the decline in the quality of textiles and the lack of high value-added outlets.
- **Difficulties related to exports**, with uncertainties about the fate of exported textiles, possible negative impacts for importing countries, and possible reductions or even bans for export in different countries.
- **Lack of data and traceability**.

Other barriers could be identified, that are more related to specific local or regional territories, such as the difficulty to set an effective collection system in dense urban areas, with more limited space for textile containers (the most common collection model), or the lower collection performance associated with high-rise buildings. Another common challenge is the lack of local governance for textile collection, with sometimes a limited involvement of local authorities, lack of local strategies and targets, the presence of several collection systems organised by various local operational players with little coordination, etc.

The lack of data and information on non-household textiles makes them difficult to apprehend. The identified data are subject to caution, yet it seems that the generated quantities are limited compared to household textiles. Re-use and recycling of non-household textiles appear to be limited, also due to the lack of solutions and regulation.

GOOD PRACTICES AND RECOMMENDATIONS IDENTIFIED IN THE LITERATURE

Good practices have been identified in the literature and grouped into different themes: **collection methods, sorting and treatment technologies, governance, and extended producer responsibility**. A cross-analysis of practical cases and more general recommendations was conducted for each of these different themes. Following these cross-analysis, it is possible to propose these **key recommendations**:

- The need to **develop territorial governance** for textile waste management, which involves the coordination and supervision of the various local players, the collection of information via reliable reporting, the definition of clear objectives and their monitoring, the promotion of second-hand care, and the transparency on the destinations of the flows collected;
- The need to **consolidate and diversify collection methods** to optimise the capture

rate, which involves an efficient network of textile banks, but also the implementation of alternative collection methods addressing the constraints of certain types of housing or population;

- For the extension of sorting guidelines to non-reusable textile waste, **the implementation of an EPR system is necessary** to secure the economic balance of textile sorting and recycling, and to promote eco-design to limit the declining value of used textiles;
- The need to **monitor the development of new recycling routes** and to collaborate on a wider scale on the creation of an industrial textile recycling sector;
- For professional textiles, the generalisation of **calls for tenders taking into account criteria on the repair and end-of-life of products**, in connection with producers, rental and maintenance services, and users.

THERE IS A NEED TO DEVELOP A TERRITORIAL GOVERNANCE FOR USED TEXTILE MANAGEMENT, INCLUDING CLEAR OBJECTIVES AND THE COORDINATION OF LOCAL PLAYERS

RECOMMENDATIONS FOR A TERRITORIAL MANAGEMENT OF USED TEXTILES

The initial study on which this report is based formulated recommendations addressing the context and challenges of the Brussels region. It is however possible to propose some more general recommendations for any local authority willing to improve textile re-use and recycling in its territory.

1. **Set up a real local governance on textile management, in consultation with the key local stakeholders**, with objectives on both performance and the collection system (density of collection points, etc.), multi-stakeholder agreements clarifying the roles and responsibilities of the various players and taking advantage of the experience and infrastructures of existing players.
2. **Strengthen existing collection methods, and identify alternative collection methods**, e.g. by completing the network of textile banks in underperforming areas, by analysing the reasons behind the underperformance in the areas concerned, and by setting up alternative collection methods to overcome the difficulties identified.

3. **Promote prevention of textile waste and second-hand purchasing** by supporting re-use and second-hand players, to help them develop their offer, and by communicating on the relevancy of second-hand and good practices for extending the lifetime of household textiles.

4. **Extend sorting instructions only when an EPR system is available** so as not to weaken the economic balance of current players.

5. **Promote circular tenders for professional textiles.**

It is also recommended to call for the implementation of a European EPR system, which is a key instrument to ensure the transition to a system collecting all textile waste before more recycling routes are available for textile waste. Several elements are important for the outlines of the EPR, including a reflection on eco-modulated fees and financial contributions to collection and sorting in connection with existing players, as well as on the inclusion of social economy organisations in the future system.

1. **ESTABLISH A REAL LOCAL GOVERNANCE ON TEXTILE MANAGEMENT**
2. **STRENGTHEN EXISTING COLLECTION METHODS, AND IDENTIFY ALTERNATIVE COLLECTION METHODS**
3. **PROMOTE TEXTILE WASTE PREVENTION AND SECOND-HAND BUYING**
4. **EXTEND SORTING INSTRUCTIONS ONLY WHEN AN EPR SYSTEM IS AVAILABLE**
5. **SUPPORT CIRCULAR TENDERS FOR PROFESSIONAL TEXTILES**

INTRODUCTION

This report is based on a study commissioned by Brussels Environment. The initial study aimed to formulate recommendations for the management of household and professional textile waste in the Brussels-Capital Region, based on an analysis of the current situation, and an overview of good practices and recommendations in Europe.

The study was conducted with an initial assessment of the regional situation in terms of used textiles management, based on available data and interviews with key regional stakeholders: social economy organisations operation the collection, sorting, and management of reusable textiles, communes delivering authorisation for the implementation of textile banks, and representatives from the textile industry.

The core of the study consisted in the review of existing good practices and recommendations in the recent literature: European, national, or local studies, European projects, and any initiatives tackling the issue of used textiles.

FOUR MAIN TOPICS WERE INVESTIGATED:

- **COLLECTION MODES AND SORTING GUIDELINES**
- **SORTING AND RECYCLING TECHNOLOGIES**
- **GOVERNANCE**
- **FINANCING AND EPR SYSTEMS**

For each topic, the good practices and recommendations were cross analysed to formulate guiding principles regarding the improvement of local used textile management.

This study comes at a time when European regulations on used textiles are evolving: the sorting obligation is set by the Waste Framework Directive in 2025, and the European Union's Strategy for Sustainable and Circular Textiles provides for the implementation of various instruments to accompany this obligation, including an Extended Producer Responsibility system.

In addition, the importance of the environmental impact of the textile industry, particularly related to the extraction of raw materials and the production of fibres, must be stressed. At the same time, there is a general decline in the quality of textiles placed on the market, and increasing difficulties related to the export of used textiles from Europe to Africa and Asia. All these elements make it urgent to rethink the end of life of textiles, but also the prevention of this waste.

THE SIGNIFICANT ENVIRONMENTAL IMPACT OF TEXTILE PRODUCTS, THE GENERAL DECLINE IN TEXTILE QUALITY, AND THE INCREASING DIFFICULTIES FOR EXPORTING USED TEXTILES MAKE IT URGENT TO RETHINK THE END OF LIFE OF TEXTILES



USED TEXTILES MANAGEMENT AND CURRENT CHALLENGES

CONTEXT

The Waste Directive 2008/98/EC⁵ provides for the obligation to sort textile waste by 2025. While this waste represents relatively small tonnages, the continuous increase in the production and consumption of textile products, as well as the enormous environmental pressure associated with their production (on climate, water, and energy), make it an essential flow to consider in the context of the circular economy. The prevention and re-use of textile waste represents a significant potential for reducing greenhouse gases⁶.

The *EU Strategy for Sustainable and Circular Textiles*⁷ foresees the implementation of various instruments to make textile products more circular, including the introduction of an extended producer responsibility (EPR) scheme. Other guidelines are proposed, such as the definition of eco-design obligations or the introduction of a digital passport for textile products. Such initiatives could have a positive impact on the sustainability of products, and therefore represent an opportunity for the development of second-hand textile sales, repair, and business models around the re-use of textile products.

If the scope and modalities of these new regulations are still to be defined, it will be in any case necessary to guarantee access to separate collection of used textiles to the various waste producers, and to consider the collection of non-reusable textiles, which are not usually targeted by the current sorting instructions.

Beyond the regulatory aspects, it is important to stress that the environmental impact of textile products is extremely significant, even if the associated quantities represent only a small part of municipal waste. Like many other products, the main climate impacts come from production: the steps from the extraction of raw materials to the manufacture of clothing account for about 80% of their life-cycle greenhouse gas emissions, and almost all impacts in terms of water consumption and toxic releases. Thus, the priority is to limit the production and consumption of textile products, by creating more sustainable products, by changing consumption patterns associated with “fast fashion”, or by improving their maintenance. Regarding the end-of-life of textile products, it is important to give priority to the re-use or upcycling of end-of-life clothing (e.g., creation

of new textile products from textiles waste), so that they replace or “avoid” the production of new products. Developing recycling, especially fibre-to-fibre, is also interesting, but has a more limited scope: fibre manufacturing represents only about ten percent of the carbon footprint of life cycle⁸.

5 European Parliament, Council of the European Union (2008)

6 ACR+ (2021)

7 European Commission (2022)

8 Sandin, Roos, Spak, Zamani, & Peters (2019)

TERMINOLOGY

This report will use the term “used textiles” to designate any textile that is donated for re-use or thrown by its users for recycling or treatment.

The actual status of used textiles is quite different from one territory to another, depending on the sorting guidelines (only textiles for re-use, or all textiles), the organisation collecting them (charities, municipal waste systems, etc.), or the national regulation. The initial study mostly focused on the products/waste managed by the social economy organisations organising textile collection in Brussels: clothes, household textiles, shoes, and accessories. Other types of textiles (upholstery, carpets, etc.) were not included since they are managed in very different ways. Regarding professional used textiles, the study focuses mostly on professional clothing (uniforms, individual protection equipment), and products assimilated to household textiles (table clothes, sheets, etc.). Industrial textiles such as textile production residues or technical textiles (used in construction for instance) were not considered.

HOUSEHOLD TEXTILES

PRODUCTION OF USED TEXTILES

Few territories have consistent and consolidated data regarding the total generation of used textiles. In most of the cases, the data on used textiles production consist in the addition of sorted quantities with the quantities remaining in residual waste, assessed through composition analyses. Some territories also have figures on the textiles waste disposed with bulky waste (collected on the kerbside or in mixed fractions in civic amenity sites). The actual generated quantities of used textiles are probably different for various reasons:

- **Some used textiles are “directly” re-used**

(from individual to individual), via exchanges or donations between relatives, or donated or sold via online sales platforms, etc. For example, OVAM (the Waste and Resource Agency of the Flanders Region in Belgium) estimates that only 16% of second-hand textiles are bought in re-use shops⁹.

- **Some of the sorted flows may also be stolen or captured by illegal or informal channels** (unauthorised textile banks, on-demand collection, etc.), and the associated quantities are naturally not known. The Belgian organisation Ressources, federating social organisations working on re-use, estimates that these illegal collections represent 10 to 15% of the potential collected quantities in Wallonia¹⁰.

- Finally, **the quantities collected selectively**

include a share of contamination that is possibly added to the tonnages reported but which are not necessarily textiles.

A study published in 2021 by the JRC⁵ provided an assessment of 12.3 kg/cap/year for the consumption of textile products (including clothing and home textiles). The EPR system in France reports 10.5 kg/cap/yr. of textile products put on the market in 2021, including 61% of clothing, 21% of home textiles, and 18% of shoes.

The quantities placed on the market reported by the various European countries range between 6 and 23 kg/inhabitant/year. While it is likely that there are differences in the calculation methods (scope, accuracy of the data, etc.), these figures

9 CE center (2021)
10 Ressources (2019)

seem to indicate that there are indeed significant differences between consumption habits in the different European countries. The JRC study also highlights that differences in living standards are not the only explanatory factor: Italy consumes more than twice as many textile products per capita as France, for an equivalent GDP. It seems that consumption habits can vary from one country to another, both in terms of quantity and quality/durability. Thus, **local generated quantities seem to be very variable and depend on factors that are difficult to identify in the current state of knowledge.**¹¹

Composition analyses have been carried out in different countries (Denmark, Netherlands) to determine the share of recoverable textiles in residual waste⁵. The data show common trends:

- About 65% of the textile waste collected selectively is reusable (including 10% locally reusable quality “cream”, and 15% of lower second quality and generally exported).
- For used textiles in residual waste, half could be either re-used, re-used after repair, or recycled.

These figures seem to indicate that **just under half of the textile waste produced is potentially reusable as such** (locally or for export). However, this estimate should be considered with caution: there are uncertainties about the representativeness of the assessment, their

quality, and their possible transposition to other contexts. In general, and as mentioned above, consumption patterns seem to change considerably from one country to another, which has an impact on the comparability of data on composition and valuation potentials.

CURRENT MANAGEMENT SYSTEM

The organisation of used textile collection is quite diverse across Europe. Few members states have established an EPR system that is responsible for the management of used textiles (France in 2007, and Sweden and the Netherlands in 2022 and 2023, with the start of the operations in 2024). In other countries, textile waste collection is under the responsibility of municipalities. The collection and treatment of used textile is mostly operated by charity organisations or private companies, with different configurations depending on the European countries. In other countries, municipalities or municipal waste companies play a significant role for the collection of used textiles. It seems that **collection in bring banks is the most widespread collection system across Europe**, even though there are no detailed data on the collected quantities depending on the collection modes.

Other collection schemes are being developed, such as the ones implemented by various brands and retailers. These systems differ slightly (permanent or punctual, damaged clothing admitted or not, sometimes against delivery of vouchers), and are sometimes coupled with the implementation of second-hand offers at preferential prices. However, few data could be identified for these different initiatives, and it is likely that the associated quantities are currently very limited compared to the more “traditional” collection schemes. H&M reports the quantities of garments collected in all of these stores in its sustainability reports, available¹². A peak of 29,000 tonnes of garments collected is recorded in 2019 for all brands owned by the group, for a total of 5,076 stores, or 5.7 tons per store on average. These quantities subsequently declined as a result of the COVID-19 pandemic to 16,000 tonnes in 2021.

Smaller initiatives can also collect damaged used textiles for upcycling purposes (creating new products such as clothes and bags out of pieces of fabrics).

LOCAL GENERATED QUANTITIES OF USED TEXTILES SEEM TO BE VERY VARIABLE AND DEPEND ON FACTORS THAT ARE DIFFICULT TO IDENTIFY IN THE CURRENT STATE OF KNOWLEDGE

11 JRC (2021)
12 H&M Group (2022)

EUROPEAN COMPARISONS

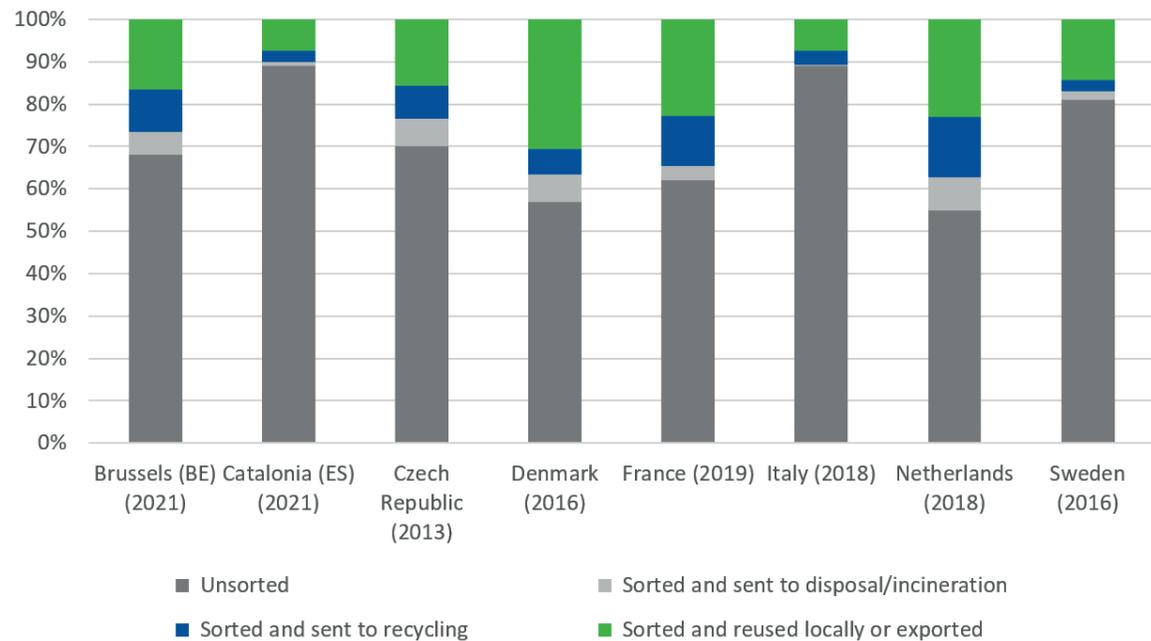


Figure 1 Share of unsorted textile waste and sorted used textiles by destination (source: Brussels Environment (2023), JRC (2021), ARC (2022))

It is possible to identify regional or national data on the collection and destination of used textiles, even if the quality and comparability of the data available are questionable. Indeed, the scope of the waste collected (types of textile products, whether only re-usable textiles are included or not), as well as the methods of estimating the quantities collected (actual data, estimate on the basis of panel, etc.) may vary from one country to another. The graph above shows the identified data.

As noted above, the data might not be completely comparable. In addition, latest available data are sometimes old, and the current distribution of quantities might have changed since then. Data collection methods differ from one country

to another, with some collecting data from collection organisations while others rely on less exhaustive surveys. There are biases on potential differences of scopes between consumption data (which might only include textile products) and the data on collected used textiles, which often includes footwear and other leather products. Collection rates seem to be higher in Denmark and the Netherlands, with France presenting slightly lower sorted quantities. Moreover, the French capture rate is slightly lower if calculated based on the quantities of textiles and footwear present in household residual waste identified by the French national characterization campaign carried out by ADEME in 2017 (31%).¹³

It is difficult to explain the differences observed

between different countries and regions. Among the territories compared here, only the French one has implemented a sorting obligation via an extended producer responsibility (EPR) system. Until 2022, it was the sole European country with a sorting obligation, along with Estonia. In 2022 and 2023, Sweden and the Netherlands in turn introduced an EPR system, whose operational implementation is yet to come. The French EPR has led to a significant increase in the collection rate since its introduction, but it remains lower than the quantities reported by the Netherlands or Denmark. In the Netherlands, a “Green Deal” on textile collection has been signed between the State and the various stakeholders in textile waste management to improve collection

performance and reduce the unsorted share, which may explain the higher collection rate.

Other factors that may explain the differences include:¹⁴

- **Whether non-reusable textiles are collected or not**, which is the case in France, but also in parts of the Netherlands and Denmark;
- **The existence of incentives and support provided to textile collectors and municipalities** (e.g. practical guides in several German regions to improve collection, sorting, and limit illegal practices);
- **The collection methods used:** bring systems are the dominant method, but other collection methods are used in some countries (France, Denmark, Netherlands), such as door-to-door or in-store collection by re-use actors.
- The portion sent to disposal after sorting is strongly related to the **presence of contamination**. There is a strong correlation between the quality and effectiveness of the communication and information on sorting instructions, and the sorting quality.
- Local re-use refers to textiles resold in the territory in question. While precise figures are not available, it appears that for most Member States **local re-use accounts for only a small share of total re-use**, and that most textiles are exported. **The fate of the quantities exported is not always known precisely**. The share of local re-use may

depend on various factors, such as demand for second-hand, competition with exchange or sales platforms between individuals, or the number of points of sale and their visibility.

Another important difference is the presence or absence of sorting units on the territory.

Sorting is a preliminary and essential step for recovery. Different types of sorting exist (manual, technology-assisted manual, or automated sorting), which can be combined in the same unit or implemented successively in different units. Streams collected for re-use are always manually sorted, following an initial manual sorting to remove contamination (e.g., products that are too damaged or non-textile). Sorting for re-use requires experienced sorters who can sort products into a hundred or even several hundred categories (depending on types, sizes, seasons, suitability for the local market or not, etc.). This sorting can be followed by manual or automated sorting to sort products by material for recycling. This optical sorting makes it possible to separate products by type of fibre and/or colour, depending on the available recycling channels. However, it is still not widespread¹⁰.

The absence or presence of sorting capacity has an impact on the quantities of textile waste imported and its nature. Some countries with insufficient sorting capacity import textiles for second-hand sale (e.g. Finland or Denmark),

while others with available sorting capacities import selectively collected textile waste for sorting for local re-use (Netherlands). In some cases, used textiles are exported to countries with sorting capacities and lower labour costs (e.g. Poland). However, the volumes concerned are, for the most part, unknown.¹⁰

In general, comparisons between the different territories are made difficult by the low quality of data, possibly related to the great diversity of the actors involved in collection and processing, the difficulties of traceability, and the differences in organisation between the territories. There are also uncertainties about the nature, quality, and quantity of the used textile generated, which seems to vary considerably from one territory to another.

Nevertheless, **the different Member States for which data are available share several aspects: low to medium collection rates, low local re-use rates, a large proportion of textiles flows exported for re-use, and material recovery mainly in the form of industrial rags, insulating materials, or other applications with low added value (downcycling)**. The market for the recovery of used textiles is global, apart from the share of textiles re-used locally, which explains why the same trends are observed in the different Member States.

COMPARISONS BETWEEN THE DIFFERENT TERRITORIES ARE MADE DIFFICULT BY THE LOW QUALITY OF DATA

PROFESSIONAL TEXTILES

PROFESSIONAL TEXTILE WASTE

There is a wide variety of professional textile products, which have their own characteristics in terms of uses, composition, and possibility of valorisation. While there are not necessarily commonly accepted terminologies across the different publications identified, the following broad categories can be distinguished:

- **Flat linen** often used until it is worn out, which makes it more suitable for recycling (possibly fibre to fibre).
- **Uniforms and workwear**, which are not subject to technical or quality standards, and can be “discarded” before wearing out (in the event of

a change of visual identity, for example), and in this case can be re-used.

- **Protective products/personal protective equipment (PPE):** technical clothing that meets strict safety and quality standards, which must be discarded as soon as it no longer complies with them. As a rule, police and army uniforms are included in this category, although they do not necessarily respond to specific standards. Indeed, they must be rendered unusable at the end of their life to avoid illegal uses.

The possibilities of re-use, recycling, or recovery are very different from one of these categories to another: some may be re-used, while others may not be due to degradation or non-compliance with technical/safety standards and will have to be directed towards other recovery channels.

It is also interesting to note that the same specific product may be of different composition depending on the product manufacturer. For example, some protective aprons used in metallurgy are actually made of textiles, while others may not.

Other non-household textile products can also be mentioned: tapestry (for furniture), outdoor textiles, technical textiles (for construction, roads, etc.). These types of products are not included in the scope of the study and will therefore not be addressed.

Among textile waste, we can also distinguish production residues of different types (yarns and fibres, fabric scraps, manufacturing or production errors related to malfunctions, etc.) , which are also not addressed in the report.

DATA ON PROFESSIONAL TEXTILE WASTE IN EUROPE

There is little data on the generation and management of non-household textile waste in Europe. However, several countries have carried out studies to identify and quantify textile flows (imports, production, management of used textiles) as a whole, with varying degrees of detail and precision: Denmark¹⁵, Finland¹⁶, and Austria¹⁷. There are observable differences between these countries in terms of the distribution of flows and management methods of used textiles, and fractions included in the study (technical textiles, waste from certain categories of actors not taken into account, etc.). It is however possible to identify **common observations**:

- **Household textile waste is the largest source of used textiles:** 88% of clothing and flat linen in Denmark, 74% in Finland (which also includes in its study waste from textile production, estimated at 6% of the total), and 60% in Austria

15 Danish EPA (2018)

16 Turku University of Applied Sciences (2019)

17 Österreich Umweltbundesamt (2022)

(which also includes technical textile waste from construction and various industries).

- The same main producers of non-household textile waste are highlighted in the three studies: the HORECA sector, care and personal service establishments, textile renting services, public services such as police, firefighter, the army, etc.
- **The recovery of non-household textiles at the end of their life also seems limited**, and disposal still appears to be preponderant.

Textile consumption and used textile management practices appear to be quite different depending on the sector of activity and context. The Danish study, which consulted different types of actors (buyers, cleaning services, collection operator), highlights the lack of information and knowledge on used textile management practices. Even in the case of centralised purchasing practices (e.g. by the headquarters of a restaurant chain, or the central services of public hospitals), the end-of-life is often managed by the various local branches. Thus, the practices of different local branches of the same group can be very different, whether in terms of responsibility for the management of end-of-life textiles or sorting and disposal practices. Professional textile rental and/or cleaning services seem to be quite widespread, especially among large structures, which makes these rental companies important

“producers” of used textiles. Small businesses appear to be more likely to buy their textile products. It is also possible that large companies rent some of their textiles (e.g. flat linen) but buy another (e.g. uniforms).¹⁸

The European [Retex](#) project, which looked at used textiles in Belgium and northern France, considers industrial textile waste streams from professional and hospital clothing, including those generated by linen rental services, as an important quantities, alongside production residues.¹⁹

When organisations use rental services (for uniforms, or bed linen), end-of-life management is usually delegated to the renting companies. The linen is usually subject to repair as it is maintained. Some smaller used textile producers may possibly use the textile containers for household textile collection.

There are already “good practices” in terms of circularity. For instance, the practice of entrusting the maintenance of flat linen or professional clothing to specialised services (including rental, for example) is cited as a practice that can expand the life of products and makes it possible to repair them. In the case of in-house maintenance, staff may not follow maintenance recommendations or may want to reduce the washing temperature

for energy savings, compensating with chemicals that can degrade the fibres. Conversely, some linear practices have gained ground: with the COVID crisis, some healthcare facilities have switched to flat linen and disposable “one size fits all” clothes for hospital patients. Other counterproductive practices can be cited, such as asking employees to ensure the cleaning of their uniforms against a financial compensation, which might lead to degraded cleaning practices, and potential contamination to the household textile²⁰.

It is difficult to assess whether the practices reported above can be representative of the different European countries.

MANAGEMENT OF UNSOLD ITEMS

The issue of disposing of unsold textile products is a highly controversial topic, but little data is available on the quantities involved, and on current practices. The French Environmental and Energy Agency ADEME published a report in 2021 looking at the quantities and causes of unsold non-food items, which includes a section on “clothing and footwear”, and on “household linen and dishes”.²¹

18 Danish EPA (2018)
 19 RETEX (2021)
 20 Creamoda (2023)
 21 ADEME (2021)

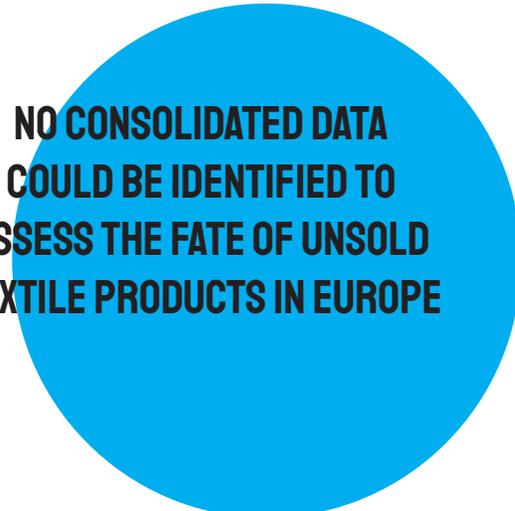
In France, for clothing and footwear, the unsold quantities come mainly from specialized brands, independent stores, and sports stores. The main causes are discontinued items (37%), production defects (31%), overproduction or overstock (for seasonal or specific products, or new products that have not found their market) (27%). Disposal only concerns 5% of unsold items and is reserved for non-conformities. The eliminated share is potentially greater in the luxury sector. Half of the unsold items are sold to pure players (stores and platforms selling exclusively online) or destocking companies, and 20% is given to associations. Projections predict a decrease in quantities of unsold products (the quantities appear to be decreasing over time in the previous years), and a reduction in disposal in favour of destocking and re-use.

For household linen and tableware (the study does not offer figures on household linen alone), the reasons are generally similar: discontinued items (41%), overstock (29%), minor defects (20%). Household linen is less subject to fashion effects than clothing, and the sector is less prone to the problem of unsold products. In addition, products can be easily stored and sold from one year to the next. The trend for unsold quantities is also downward. The percentage of unsold items sent to disposal represents 17% of the unsold items, however it is possible that this phenomenon affects more (broken) tableware

for which there are no recovery channels. Destocking concerns around half of unsold items, while donations to associations represent a little more than a quarter.

These data and information were collected for France, so it is difficult to determine whether they can be transposed to other European countries. Other studies state that between 6.5% and 33% of garment put on the European market is unsold and “frequently” sent to incineration and disposal due to the cost of storage²². However, no consolidated data could be identified to assess the fate of unsold textile products in Europe.

In May 2023, the European Council adopted a position on the eco-design regulation, including a ban on the destruction of unsold clothing and apparel. It is likely that such ban will be introduced at some point.



**NO CONSOLIDATED DATA
COULD BE IDENTIFIED TO
ASSESS THE FATE OF UNSOLD
TEXTILE PRODUCTS IN EUROPE**

BARRIERS FOR CIRCULARITY

GENERAL BARRIERS

As mentioned earlier, the international nature of the market for textiles and used textiles means that many barriers are common to different European territories. Among the main obstacles to the circularity of textiles and the circular management of used textiles, the following are the most often encountered:

- **Decline in the quality of the collected quantities:** several factors explain this trend: the general decrease in the quality of new textile products, and the competition from resale/exchange sites or shops that divert the most valuable products from the traditional selective collection schemes. In some territories, the decrease in

quality is also explained by the gradual inclusion of non-reusable textiles in sorting instructions.

- **Competition with other value chains:** as mentioned previously, there is a tendency for households to sell “directly” (mainly online) the most valuable clothing. In addition, fast fashion has led to a drop in the prices of new products that compete with second-hand.
- **Technical barriers for sorting and recovery:** these barriers are of different types. First, eco-design to improve the management of end-of-life textiles is underdeveloped, and the trend is more towards more complex textile products (mix of materials) and products with a shorter shelf life. In addition, closed-loop recycling (fibre-to-fibre) is still technically limited by various factors: the lack of automated sorting systems capable of providing homogeneous, contamination-free flows that can be recycled, the shortening of fibres linked to the wear and tear of textiles during their use, washing and drying practices by households, the presence of fibres mixing different materials or chemicals such as coating disrupting recycling. While chemical recycling could overcome some of the limitations of mechanical recycling, technological solutions are not yet available for many types of fibres, and the presence of other materials in used textiles (buttons, etc.) is also a problem. Finally, the use of recycled materials in textile products can reduce product durability and re-use opportunities. However, it should be noted that different innovations have emerged for the sorting

THE INTERNATIONAL NATURE OF THE MARKET FOR TEXTILES AND USED TEXTILES MEANS THAT MANY BARRIERS ARE COMMON TO DIFFERENT EUROPEAN TERRITORIES

and recycling of used textiles, and it is possible that these barriers will be gradually removed with these technological innovations being developed. In the current state of technology, and even with efficient automated sorting, it is estimated that only 25% of non-reusable textiles can be recycled in a closed loop. For the rest, other types of technologies will have to be considered, which for the moment are of low added value (insulation panels, etc.).²³

- **Economic barriers for sorting and recovery:** sorting for re-use is labour-intensive, which can represent a significant cost. These costs are even more limiting for projects focusing on upcycling or repair. Collection and sorting costs also reduce the competitiveness of recycled materials compared to virgin materials. For fibre-to-fibre recycling, recycling channels are likely to be transnational, which will have an impact on transport costs. However, the introduction of EPR systems could make re-use and recycling more economically sustainable. Currently, 50% of the value of textiles

collected in the Nordic countries comes from the “cream” (the 10% of textiles re-used locally, having the best quality), and 45% from the second-best quality (textiles sent for re-use mainly in the rest of Europe and Africa, corresponding to 45% of the quantities collected). The remaining 45% (low-quality re-usable textile and recyclable textile) represents less than 5% of the economic value²⁴.

- **Challenges with exports:** the quantities of used textiles exported outside the EU have increased significantly over the past 20 years. Second-best quality flows are mainly sent to Africa for local re-use, while lower quality flows are sent to Asia, mostly for recycling. There is no precise and reliable data on the fate of these textiles. The non-recoverable part is mostly landfilled locally. The environmental impact of exports is questionable: the lower quality may suggest that products have a short lifespan and may negatively impact potentially underdeveloped waste management systems. In addition, imported textiles can compete with local textile production and limit their economic development.²⁵

- **Data and traceability:** As noted earlier, data on the production, management, and fate of used textiles is fragmented and often includes great uncertainties. In addition, there is poor traceability of the different flows of used textiles. This lack of traceability has an impact on the monitoring of the presence of chemicals in textiles, as well as on the

transparency of the origin and nature of recycled materials.

Other barriers could be identified, that are more related to specific local or regional territories, such as the difficulty to set an effective collection system in dense urban areas, with more limited space for textile containers (the most common collection mode), or the lower performances associated with high-rise buildings. Another common challenge is the lack of local governance for textile collection, with sometimes a limited involvement of local authorities, lack of local strategies and targets, the presence of several collection systems organised by various local players with little coordination, etc.

BARRIERS AND OPPORTUNITIES FOR PROFESSIONAL TEXTILE WASTE

The lack of knowledge on circularity issues by textile stakeholders is one of the first barriers to the implementation of circular practices. Many textile companies have also been impacted by successive crisis (COVID-19, shortage of raw materials, war in Ukraine) which reduces opportunities for investment and new projects, which could reduce their competitiveness. The absence of EPR systems limits the possibilities

of financing collection and recycling schemes. For many flows, there is also a lack of a recovery sector.

Another obstacle comes from the fact that buyers do not always consider costs over the entire life of products and focus on purchase costs while not assessing the associated maintenance costs. It is possible that circular procurement practices for textile products are ultimately more economical if the entire life cycle is considered, but this is generally overlooked.

Finally, some safety standards for PPE may limit the possibility of using recycled fibres and materials.²⁶

IT IS POSSIBLE THAT CIRCULAR PROCUREMENT PRACTICES FOR TEXTILE PRODUCTS ARE ULTIMATELY MORE ECONOMICAL IF THE ENTIRE LIFE CYCLE IS CONSIDERED, BUT THIS IS GENERALLY OVERLOOKED

24 JRC (2021)
 25 EEA (2023)
 26 Creamoda (2023)



COLLECTION OF GOOD PRACTICES AND RECOMMENDATIONS

APPROACH

Good practices were identified through a bibliographic study bringing together more than fifty publications and reports (reports and technical guides, deliverables of European projects, European, national, or regional studies, catalogues of good practices, etc.). The list of publications is presented in Appendix 1.

The identification of good practices was made according to four themes. These four themes and associated priorities are presented in the following table.

The good practices were listed in a spreadsheet and rated according to different parameters (effectiveness, quality of data, etc.) to identify the most relevant ones.

One of the main limitations of this collection of good practices is the lack of reliable quantitative data. This is related to different factors:

- As mentioned above, **data on textile management are of low quality** in all European countries (with rare exceptions), and many recommendations focus on the need to improve

and homogenise data collection. This is due to the fact that there are many players in textile waste management, and that there are no quantified targets in many countries.

- **Practices are quite different from one country to another**, and generated quantities also seem quite heterogeneous, making comparisons more challenging.
- **Many projects and publications are very recent**, which limits the hindsight on the documented practices, especially the long-term benefits.

It should also be noted that there are **relatively few “very good practices”** as there may be for other types of waste. The general barriers mentioned in the first part of the report have severely limited the possibilities of achieving very high collection and recovery performance (mostly collection for re-use which limits collection rates, no or few incentives, etc.).

The identification of good practices was therefore based partly on the quantitative data identified, but also by cross-referencing the feedback and recommendations identified in the different

publications and contexts.

In total, around 100 good practices and recommendations were identified, with an equal distribution between good practices and recommendations. The majority relates to governance and collection methods. In addition, it should be noted that the good practices and recommendations identified exclusively for professional textiles are limited to about fifteen, although other good practices and recommendations cover both household and professional textiles.

The bibliographic sources identified are listed in Appendix 1 and have been numbered from 1 to 57. The sources for each type of recommendation and good practice presented below will be indicated in parentheses by this number in the sections below.

topics

COLLECTION MODES

Textile waste collection methods, associated sorting instructions, promotion of sorting among residents

TREATMENT AND RECOVERY

Method of sorting, re-use, recycling, and recovery channels

GOVERNANCE

How public authorities plan and organise textile waste management

EPR SYSTEMS

How the sorting obligation can be financed (collection and sorting of the low-value non-reusable fraction)

key sub-topics

Identification of the different collection modes used and associated performances.

Coexistence of collection methods targeting different sorting instructions (e.g. collection for re-use in parallel with collection of non-reusable textiles)

Existing channels for the treatment of textile waste

Dimensioning of sorting / processing units set up

Links between public authorities and the various collection actors

Tender, follow-up, type of contract, cooperation/ competition, coordination

Description of the systems in place / to come, with a focus on the contributions of marketers and the financing mechanisms of collection, sorting, and recovery.

Performance and/or objectives

Transition from a skimming collection to an “all-stream” collection

Table 1: Themes and priorities for the collection of good practices



COLLECTION

As mentioned previously, there is a dominant collection scheme in Europe: a collection mainly targeting re-usable textiles, mainly organised by social economy organisations, and carried out using textile containers. These schemes are organised in this way because of the economic balance of the sector: the value of used textiles comes mainly from locally re-usable products (the “cream”), followed by products that can be re-used for export (“second-best quality”). There is also a lack of high-value recycling routes. Therefore, the collection of non-reusable textiles represents a significant cost while it is impossible to get significant income from it.

However, other schemes have been developed: different collection methods (in-store, on-demand collection, door-to-door collection), as well as collection schemes including all textile waste; this is the case in France, where the EPR system requires and partly finances the collection and recovery of all textile waste, but also in other countries (the Netherlands, Denmark), where an increasing number of municipalities have extended sorting instructions from re-usable textiles to all textiles.

The subject of textile collection covers different aspects:

- **The “logistical” aspect**, with the idea of centralising good quality flows by avoiding contamination with other types of waste, soiled or wet fractions, contamination by rain, or theft of textiles before collection;
- **The “involvement of residents” aspect**, which includes the modes of communication on the collection system (e.g. where to bring the used textiles) and sorting instructions (what must be sorted, what is excluded), the convenience of collection (space available for sorting at home, distance and accessibility of collection points), and the motivation (transparency of the system, key messages, incentives, etc.).

COLLECTION AT DROP-OFF POINTS / TEXTILE CONTAINERS

This method of collection is the most common for different reasons: it is inexpensive to set up and operate, simple to implement by the different types of actors, and generally ensures the integrity of the textiles collected. It is also adapted to any type of housing and represents a flexible solution for the inhabitants, provided that there is a sufficiently dense network of collection points. In many territories, this is the method of collection that captures most of the sorted quantities.

Among the success factors of textile containers, the following points are identified:

The density of collection points: it is often highlighted as a key success factor, with objectives varying according to the territories: 1 voluntary contribution point per 1,500 in France, 1 per 1,000 inhabitants in Flanders. Other publications indicate very different objectives (Sweden: 1 collection point per 5,000 inhabitants), which may reflect different contexts in terms of population density and how containers are accessed (e.g. on foot or by car). Several territories with above-average collection performance have high container densities: Flanders with 1 container for 650 inhabitants on average, with nearly two

third of household textiles captured, or the city of Oldenzal in the Netherlands which collects more than 10 kg/cap/year of used textile with 1 contribution point for 1,170 households. These figures tend to be much lower in dense cities: Rotterdam has 1 collection point per 2,900 inhabitants; a figure close to the one in Paris (1 per 2,800 inhabitants). WRAP considers that a textile container can serve about 1,000 households (1) (29) (32) (36) (54).

THE KEY FACTOR OF SUCCESS FOR TEXTILE CONTAINERS: DENSITY, ACCESSIBILITY, AND VISIBILITY

These indications and information must be taken with caution, as **the “optimal density” of collection points depends on the context of its implementation**. For example, a previous study on glass collection conducted by ACR+²⁷ could not establish a clear correlation between collection performance and the density of voluntary drop-off points (by number of inhabitants and by area). The optimal number of collection points depends in particular on the population density. It may therefore be interesting to consider the average distance between the collection points and the inhabitants.

The location of the collection points: this element seems to be decisive for the performance of these collection points. Various factors are mentioned (29) (32) (45):

- **Location in the public space:** crossing points, well-frequented areas, etc.
- **Proximity to other waste containers:** the city of Rotterdam has experienced lower contamination rates when textile containers are not placed near other voluntary collection points. However, this phenomenon is not necessarily observed in other cities. It is possible that other factors are involved (presence or absence of specific openings for each fraction collected, clarity of the provided information and signage, etc.).²⁸
- **The positioning of collection points in “closed” and/or “monitored” places:** this point will be addressed in the section on “alternative collection methods”.
- Various reports mention the **use of sensors** to track their filling and optimise collection routes. These practices also make it possible to monitor the individual performance of the different collection points and to consider whether their location is appropriate.

The visibility of collection points: several studies highlight the need to have **collection points that are easily identifiable by residents**. Thus, the presence of textile containers of different shapes and aspects, sometimes located next to each

other, can blur the general message. Various experiments highlight the homogenisation of the appearance of textile containers as a success factor, such as “de Collectie” in Antwerp, that brings together different organisations under the same visual identity, or in Copenhagen where textile containers have received the visual identity of the municipal waste management company to signify the extension of sorting instructions to non-reusable textiles. Common signage has also been set up in 2021 by the French producer responsibility organisation ReFashion, which is placed on all approved collection points, to guarantee residents that textiles will actually be re-used or recycled. This logo is also accompanied by a QR code that leads to a video explaining the future of donations. Other important points will be addressed in the section on governance, including cleanliness and monitoring of container filling (29) (32) (37).



Figure 2: Logo placed on authorised collection points in France (Source: ReFashion)

These various recommendations are similar to those made for the implementation of collection points for waste electrical and electronic equipment by the COLLECTORS project²⁹, whose collection may be similar to textile collection (waste produced occasionally, different types of collection points, possibly fragmented information among the different collection schemes, risks related to theft, importance of quality to allow the recovery of sorted materials). These recommendations insisted on **the proximity and accessibility of sorting points** (adapted schedules, geographical proximity, etc.), **visibility, security** (closed containers, under surveillance, etc.), **simplicity** (clear and easily accessible instructions), and **cleanliness** around collection points.

ALTERNATIVE COLLECTION METHODS

Many reports stress the importance of **diversifying collection methods**. This is particularly true in large, dense cities, where the lack of space can limit the possibly to implement containers, but also because of the presence of high-rise buildings where sorting is generally more complicated (inhabitants less easy to reach, lack of space for storing waste, populations less sensitive to sorting, etc.).

Thus, several large cities have diversified the

collection methods used to overcome these difficulties, under the direction of the EPR system (in Paris) or following the implementation of a stronger local governance of textile management (in Rotterdam and in Copenhagen). These different case studies have been set up in collaboration with one or more collection organisations, and generally start from the observation that the traditionally used collection method has limited impact (e.g. textile containers in Paris, or collection in civic amenity sites in Copenhagen). Different specific collection methods are then set up to target specific audiences: **local or mobile civic amenity sites** to reach residents who do not have easy access to the main civic amenity sites (in Copenhagen and in Paris), **collection points located next to high-rise buildings, in shops, or in offices**, to reach in particular residents living in flats or the most disadvantaged populations. These various actions also involve increased communication actions to publicize these different initiatives. The alternative collection methods used are described below. These different experiments have all led to increases in collection performance (+70% in Rotterdam, 45% collection rate achieved in Copenhagen, 30% reduction in the quantities of textiles thrown with residual waste for Paris), even if the collection performances may still be below national averages. However, it is difficult to obtain clear data on the effectiveness of each collection method individually. (32)

The following alternative collection modes have been identified:

Door-to-door collection: this collection method, implemented in various medium-sized municipalities in Denmark, the Netherlands, the United Kingdom, or Sweden, takes different forms: **collection in bags**, alone or mixed with other re-usable products (books, small electronics, etc.), or **collection in bins**, mixed with packaging waste. **Collection frequencies vary considerably** from one case study to another, from a few collections per year, to weekly or bi-monthly collections. The collection is provided either by the municipalities or public companies in charge of municipal waste, or by social economy organisations, depending on the collection modalities.

WHILE THEIR INDIVIDUAL EFFECTIVENESS IS DIFFICULT TO ASSESS, ALTERNATIVE COLLECTION METHODS SEEM TO BE EFFECTIVE TO ADDRESS MORE CHALLENGING AUDIENCES

Collections in bins (identified in Denmark and Sweden) take advantage of “**optibags**” systems, i.e. collection methods for which the different fractions (residual waste, paper/cardboard, packaging, textiles) are to be placed in bags of different colours, then in a single bin, to be collected commingled and then sent to a sorting centre (see Figure 3). In these centres, bags are sorted by colour, opened, and their contents are then sent to specific sorting units. **These collection methods are convenient for the inhabitants, but they can generate contamination** if the bags are torn during collection, and **do not seem to have led to outstanding performances** (in Vejen, Denmark, 4.7 kg/cap/year were collected for a total of generated quantities of 14 kg).

Door-to-door collection in bags seems to have increased overall capture rates in the cities where it was implemented, but it is difficult to assess their real effectiveness, especially since collection costs seem to be significantly higher than collection with containers. The “Best Bag” initiative implemented in various Dutch municipalities report a collection cost of about €200/t for door-to-door collection, compared to €165/t for containers, although other sources highlight the better quality obtained through door-to-door collection, which generates more revenue, and thus offset the additional cost of door-to-door collection. However, this point also depends on the collection operator: some

households only bring their re-usable clothes for the collections operated by charity organisations and put damaged products in the collections operated by the municipalities. There are also on-demand services, which make it possible to collect larger quantities at a time, but which give less important performances than regular door-to-door collections in the long term (lower number of participating households overall). **Thefts of bags of used textiles are also mentioned:** they do not affect all municipalities and can be partially limited by reducing the time between dropping off the bag on the sidewalk and the collection, but the available data do not allow to assess their magnitude. Some publications suggest that theft is potentially more frequent in large urban centres. Door-to-door collection schemes appear to be relatively uncommon. In Flanders, it represents 1% of the tonnes collected against 89% for textile containers. However, some cities want to develop door-to-door schemes to replace containers; Antwerp reduced the number of containers and collected more than a third of textiles door-to-door in 2017 (on demand or on a regular basis), and observed an improvement in the quantities collected and overall quality. (1) (3) (26) (32) (38) (45)



Figure 3: Principle of “optibag” collection (source: ENVAC)

Collection in high-rise buildings: several cities have sought to simplify sorting for high-rise buildings, noting lower collection performances (for textiles as for other types of waste), and **implemented specific textiles containers dedicated to certain buildings.** This method of collection has several advantages: **making the collection point more visible and accessible, raising awareness among building residents about used textiles, and limiting contamination from external sources.** The city of Gothenburg (Sweden) has successively set up various pilot sites in parallel with an extension of sorting instructions to all textiles, in collaboration with certified social economy collection companies to enable them to collect all textile waste. This experiment is interesting because participants were surveyed:

- A third of residents had read the information about the new collection system before it was implemented, and 60% identified it after it was implemented.

- Of these 60% who identified the new system, two-thirds declared that they knew the sorting instructions, but only half had really understood the extension to non-reusable textiles, i.e. that they could also put damaged textiles in the new containers.
- A quarter of the 60% who identified the new system still use textile containers located in the streets, thinking that the new containers are only to be used for non-reusable textiles.

The implementation has, however, increased sorted quantities (both by reducing the number of sorters and by capturing non-reusable textiles), but it is difficult to assess the actual performance of the system, considering that some residents still use the textile street containers. One of the pilot sites has a collection rate of 3.6 kg/cap/year, 50% higher than the national average in 2017. Re-use rates are also relatively high, reflecting a good quality. Thefts were recorded in 10% of the pilot sites but reduced with the implementation of more secured containers. The other identified case studies document the use of containers of different sizes to adapt to space constraints (in Copenhagen), but do not present data on performances that are specific to this type of system. (3) (29) (32)

Collection in civic amenity sites or mobile collection points: it is a relatively **common practice**, with different types of organisations: **some systems provide a right of access to one or several collection operators, while other**

implement textile containers in the civic amenity sites against a fee paid by the collector, for instance. Collection in civic amenity sites is the predominant collection method in Copenhagen. It was also developed in Paris to compensate for the lack of textile containers, in parallel with other systems: mobile waste collection centres for occasional waste (TriMobile) and voluntary one-off drop-off points also collecting packaging waste (TriLib, see Figure 4). These actions are promoted through communications addressed to the inhabitants living where the mobile collection points are implemented.

Among the recommendations, it is advisable to put the textile containers away from the containers receiving mixed fractions in civic amenity sites to avoid confusions and contamination. These collection methods also benefit from the **presence of employees** who can help with sorting and explain the instructions, thus limiting errors and contamination problems.

In Barcelona, a **mobile repair system**, the “Didaltruck”, has also been set up. Residents are invited to go to the truck stopping points, fixed in advance, to benefit from repair equipment and advice to repair their textiles (free service, funded by the Waste Agency of Catalonia). (29) (32) (47)

In-store collection in second-hand shops: this method of collection is also common and **generally gives better results from a quality point of view,**

with users having to donate their used textiles directly to the staff. Other systems take advantage of second-hand stores, such as the “Re-use Box” or the “Re-use Bag” distributed in second-hand stores in Graz, Austria, where residents are asked to place their re-usable products (including their clothes in good condition) and bring them. **This type of collection can also promote second-hand purchases.** (1) (32) (47)



Figure 5: “Re-use bag”, bags for the voluntary supply of products for re-use in Graz, Austria (source: Nachhaltig in Graz)

In-store collection in clothing stores: as specified in the first part, some clothing stores and brands are taking a role in the collection of used clothing, with different modalities: acceptance of products of its own brand or of any brand, re-usable clothing only or not, donation against discounts or vouchers or not, via containers or in direct connection with the employees of the store, etc. However, this trend is poorly monitored from a performance point of view, and it is difficult to estimate its importance. In the United Kingdom,

in-store collection would represent around 1% of the quantities collected. Views on these practices are diverse, and **some publications criticise the principle of discounts or vouchers that encourage consumption**, and whose impact is not proven. However, other reports highlight their interest for reaching specific consumers, especially young people who are the most frequent users. WRAP has developed a guide for in-store collection, which lists various examples of good practices as well as recommendations for organising and promoting this method of collection, particularly regarding staff training, the possibility of involving charity organisations, internal organisation and between centralised services and stores. In addition, some brands have implemented **clothing rental systems** as a way to improve engagement around the brand and reduce product returns (21) (44).

Collection points in public or private places: various guides or good practices highlight the value of **setting up temporary or permanent collection points in different public or private places**, including administrative buildings, schools, libraries, shopping malls, or supermarkets. In Denmark and Sweden, this type of collection has **good feedback from users for different reasons: cleanliness, safe environment, and possibility to exchange with staff**. In Rotterdam, the REBOX system makes this approach even more flexible: the company responsible for managing textile waste, ReShare, offers cardboard boxes

to interested employees or managers, who can dispose of them at their workplace. A voucher of €10 for second-hand products is given for every 10 kg of textile deposited (29) (32).



Figure 6: REBOX collection box (source: ReShare)

Other actions have also been identified, such as **the distribution of bags for a collection initially planned as a door-to-door system to encourage residents to drop off clothes at collection points**, set up in Rotterdam.

The questions of organisation, monitoring, and coordination of the different modes and actors of collection will be addressed in the “Governance” section of this report.

COMMUNICATION AND SORTING INSTRUCTIONS

Communication is an essential point for the management of used textiles. Textile waste is special for several reasons: it is an “occasional” waste, which means that it is not produced

continuously as food or packaging waste are. It is generally managed outside the public waste service and possibly by different actors; finally, the reasons behind the end-of-life of textiles are diverse: damaged products, clothes not fitting anymore, out of fashion, etc. In many of the actions identified, it appears that **users are often unfamiliar with sorting instructions or with the different collection methods available to them**. Experiments involving changes in sorting instructions (for example by moving from a collection for re-usable textiles to an “all textile” collection) often report confusions or misunderstandings from the users.

Some elements related to sorting instructions, communication, and the coexistence of complementary collection methods (such as collection for re-use and textile waste collection in parallel) have been identified.

Knowledge of citizens’ behaviours and perceptions: several reports highlight **the importance of better understanding the knowledge, perception, and behaviour of users** regarding the end-of-life of textiles. Many reports indicate that residents generally want to contribute to a better management of used textiles, with different motivations. Knowledge of the negative impact of textile products, as well as the knowledge of the positive impact of sorting, seem to be important drivers behind sorting behaviours. In addition, the perception of textile sorting as a social norm seems to greatly favour

sorting behaviours: showing people that their entourage practice sorting encourages them to participate as well. For in-store collection users, rewards may be more important than other motivations. Finally, the “social” aspect behind the behaviour of “donating” is also often cited as a key factor motivating textile sorting. (17) (26) (32) (44) (47)

Implementation of differentiated collections for re-usable textiles and non-reusable textiles:

it may be tempting to reserve the sorting of re-usable textiles for charity collection circuits, and to set up parallel textile waste management services aimed at capturing non-reusable textiles for recycling. **Such a system is interesting to optimise the collection costs of re-use organisations, because of the low price of non-reusable textiles and the additional cost of sorting all textiles** (sorting for re-use is manual, and therefore very “labour-consuming”). Such practices of parallel collection for re-usable and recyclable textile have been identified but are not very common, the dominant model being collection for re-use, which focuses on re-usable textiles, being those with genuine economic value. However, several Danish municipalities (e.g. Roskilde and Vejen) have implemented parallel collections by organising a collection of non-reusable textiles in parallel with the existing collection containers managed by re-use organisations, either through a collection in civic amenity sites, or via a dedicated door-to-door

collections. **The results obtained are nuanced:** while they have made it possible to capture more textiles overall, and thus reduce the share of textiles in residual waste, the fractions collected in “non-reusable” waste include between 20 and 30% of re-usable textiles, and around 60% in the case of Vejen. It therefore seems that the inhabitants have a poor understanding of these parallel systems or have difficulty appreciating the reusable nature of their textiles at the end of their life. Considering the communication efforts required by these parallel systems, as well as the associated additional collection costs, the effectiveness of such systems is questionable.

Another example is that of Nijmegen (Netherlands), with a collection in “2 steps” in civic amenity sites. Users going to a civic amenity

site are invited to stop at a re-use point at first, where they give their re-usable products, before accessing the “waste” section. (1) (47) (49)

Communication on sorting instructions: as mentioned above, communication on sorting instructions is crucial. **Many good practices indicate that changes in sorting instructions are not easily understood by the population,** despite the communication actions undertaken (updated sorting guides, municipal newspapers, social networks, information on terminals, or promotional campaign such as the “Paris du Tri” organised in Paris in 2016). The need to standardise sorting instructions between the different collection methods is also a recommendation shared in several publications (1) (29) (32) (49)



Figure 7: Sorting instructions for the collection of (non-reusable) textile waste from the sorting guide in Roskilde, Denmark (source: Roskilde Kommune/)

Messages and transparency: As mentioned previously, sorting is often **motivated by the social and environmental aspects associated with re-use**; residents are generally more likely to participate if the donated textiles are re-used locally in the first place. The issue of **transparency** (particularly regarding the fate and destination of the collected textiles) is central in terms of governance, but also regarding communication. The various recommendations identified highlight the need to communicate not only on the sorting instructions and collection modes, but **also on the fate and destination of the sorted textiles**, in particular on the share that is exported. The issue of transparency seems to be associated with the social nature of charity organisations that often manage the collection and sorting of textiles, so their participation in the textile management system is perceived as a factor of trust. Various good practices aim to highlight information on the future of textiles: the QR codes placed on the drop-off points in France, mentioned above, go in this direction. This is also the case in Albano Laziale, a city in Italy, where the issue of transparency has been central for the implementation of an integrated textile management, due to various recent dysfunctions in Italy around waste management, and textile waste in particular. Among the various actions, several can be mentioned, such as the organisation of events in partnership with the Embassy of Mozambique, where some of the textiles are sent for re-use. In addition, part of the

profits is donated to the community, via a system of assistance to students in difficulty, which can be an additional argument for users. (29) (32) (33) (34) (45)

Promotion of second-hand purchases: local re-use is the priority of textile management systems, from an economic point of view (it represents a very important share of income), environmental considerations (provided that second-hand purchase replaces new products), but also in terms of image for the waste management system (it materialises the relevancy of the sorting behaviours for the inhabitants). However, **second-hand purchases are not necessarily perceived positively by consumers** of new products with pre-conceived ideas on hygiene problems, low quality, old-fashioned clothes, etc., while second-hand consumers buy them for a variety of reasons (environment, but also originality, more sustainable clothing, etc.). **It is therefore important to promote second-hand purchases.** Several reports look at the issue and insist on the importance of changing the perception of second-hand textiles by changing the shopping experience, which must differ from that of new (marketing, price, fashion, etc.). One of the difficulties comes from the fact that **the second-hand products sold are often unique and not series, which makes them more difficult and resource-intensive to promote.** There is also the difficulty for consumers to have to go to the store without having the certainty that they will

be able to find the products they are looking for, and at their size. The reports insist on the **need to support second-hand players** to enable them to invest, for example, in digital tools to sort, assign prices, and highlight (e.g. online) the products on sale, or for market research to better understand the different consumer segments and adapt the offer accordingly. It is also indicated that experience in points of sale is very important, especially its “formal” or “professional” character which reinforces the guarantee on respect for quality and hygiene. One of the reports gives the example of the Myrorna organisation in Sweden, which rents sales space in “normal” clothing stores or pop-up stores to propose second-hand clothes. (25) (50)

USERS ARE OFTEN UNFAMILIAR WITH SORTING INSTRUCTIONS OR WITH THE DIFFERENT COLLECTION METHODS AVAILABLE TO THEM

TREATMENT AND VALORISATION

Most of the used textile management systems in place are organised in the same way: following collection, the collected textiles are transported to **a usually manual sorting centre** (local, or outside the territory of collection, or even abroad). Most current sorting centres mainly operate manual sorting with the aim of extracting fractions that can be re-used locally (“the cream”) or for export. These sorting centres remove the contamination, including the textiles that are too damaged or soiled, and send them to the incineration. The textile waste that cannot be re-used is sent to other sorting facilities or to recycling, depending on the available recycling routes.

Various projects for **automated sorting units** (for recycling) and **open or closed loop recycling** have

recently emerged, or are under development, but high value-added outlets for non-reusable textiles remain rare. A recent report provides an overview of manual and automatic sorting units, as well as recycling units in Europe. While there are uncertainties about the inventory of manual sorting centres, the report estimates the total capacity of automatic sorting centres at 230,000 t/year, and that of mechanical and chemical sorting units at 1 million and 250,000 t/year respectively. (53)

SORTING SYSTEMS

Manual sorting: as mentioned above, sorting centres mainly operate manual sorting lines. There are more than a hundred sorting centres in Europe, of extremely variable sizes, ranging from a hundred tonnes to several hundred thousand tonnes per year. The incoming flows are initially cleared of wet or soiled parts by manual sorting. **Sorting re-usable products requires properly trained sorters who can separate textiles into one to several hundred categories.** Experienced sorters are able to sort between 100 and 150 kg of products in one hour. It is not likely that this sorting can be automated in the near future, so the increase in the quantities captured will necessarily involve an increase in sorting capacities and an increase in the number of manual sorters. This step is also a necessary

preliminary step for any sorting for recycling. (6)

Semi-automatic sorting: there are different units that operate a “semi-automatic” sorting, which consists of manual sorting assisted by electronic devices. There are two examples of units practicing semi-automatic sorting (6) (53):

- **Manual sorting assisted by portable near-infrared scanners** by the company Lounais-Suomen Jätehuolto Oy in Finland: after 3 manual sorting steps (removal of impurities and soiled textiles, extraction of re-usable textiles, removal of multilayer and composite textiles), operators perform a sorting using a scanner allowing them to recognise the type of fibres of the different textiles. The scanners can be configured to detect the types of fibres according to the identified recycling outlets (e.g. 100% cotton, 100% polyester, etc.). The textiles are thus separated so that they can be sent to recycling channels. The unit is sized to process one tonne of textile per hour, and a sorter can sort around 45 kg/hour, with a goal of reaching 80-90 kg/hour in the long term. The sorted textiles are then sent to a cutting unit with a capacity of 5,000 t/year. The unit, which recovers textiles partly sorted upstream by other actors, sends 10% of textiles for re-use, 30% for recycling, 30% for incineration, while the remaining 30% leaving are stored pending outlets for the fibres concerned. There is a project for a more automated unit with a capacity of 20,000 t/year.

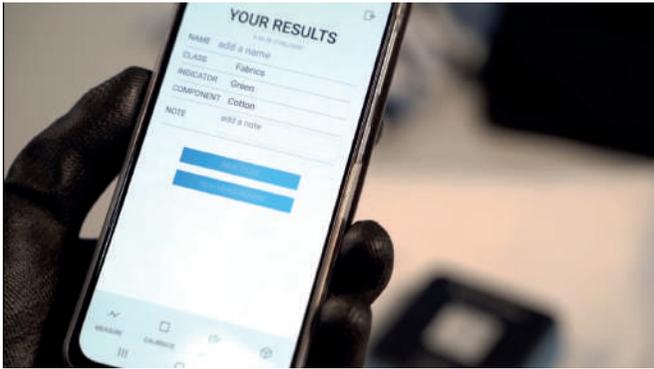


Figure 8: Semi-automatic sorting system of the Lounais-Suomen Jätehuolto sorting centre extracted from a presentation video (source: Lounais-Suomen Jätehuolto - LSJH)

- Manual sorting with voice assistant** for sorting recycled textiles in Schattdorf, Switzerland (TexAid company): the first steps are similar to the previous sorting centre above, after which between 100 and 200 kg of textiles are sent to a sorting area where a sorter, equipped with a voice recognition headset, orally identifies the type of textile, after which the system sends the textile to different storage locations using compressed air nozzles. This process has improved the sorting rate to 1.5 tonnes per hour, making it competitive with Eastern European units that benefit from lower labour costs. The capacity of the unit is 2,000 t/year.

Automatic sorting: these are units equipped with sorting lines using optical sensors to determine the nature of textile fibres and thus allow sorting by type of material. Two small- and large-scale automatic sorting units can be identified, while other are in project (6) (53):

- The FIBERSORT sorting centre in Amsterdam, The Netherlands:** an optical sorting system scans each textile up to 5 cm in diameter to determine the colour and composition of the textile. If the colour/material combination is one of the recycled fractions, it is sent to the container in question via compressed air nozzles. The system can sort up to 45 categories, and currently sorts monofibres (wool, cotton, acrylic, polyester, viscose, and polyamide), as well as mixed fibres: polycotton, wool-polyamide and wool-acrylic. The quality of the materials obtained is good and allows mechanical or chemical recycling. The system cannot process multilayer textiles and is being optimised.

- The automated sorting centre with SIPTex technology in Malmö, Sweden:** this is the main mechanised sorting centre in Europe, which consists of three optical sorting systems followed by a control, allowing to sort different combinations of fibres: 95% cotton, 70% cotton, 95% polyester, 60% polyester, and 95% acrylic, which are the fibres for which there is a demand. As with other processes, the system processes pre-sorted textiles from which re-usable textiles, soiled textiles, and impurities are extracted. The system can sort all kinds of fibres according to specific criteria, with a technical capacity of 4.5 tonnes per hour. However, scans cannot sort multilayer materials. At full capacity, the centre will be able to sort 24,000 tonnes per year.

Another project can be mentioned: the FIREX project in France that brings together different players in the textile valorisation, which aims to set up an industrial tool for the sorting and recovery of non-reusable textiles, both from household and businesses. The project intends to sort the used textiles by composition, then cut and smooth them, to finish on an over-sorting by composition and colour and send the sorted fractions to closed-loop recycling (to make new textiles), or open loop (to make insulation materials, plastics, etc.). A pilot of 3,000 t/year should be set up in 2023, and an industrial unit of 25,000 t/year in 2025. (41)



Figure 9: SIPTEX optical sorting (source:Tomra)

RECYCLING ROUTES

There are different types of recycling, the **most common being mechanical recycling** (fraying, cutting, shredding) **and chemical recycling** (recycling polymers or monomers), although many processes consist of the combination of these different processes. Recycling routes also differ in that it is done in an “open” loop, which means that the materials are used for applications other than textile manufacturing (dusters, insulation materials, etc.), or in a “closed” loop, which means that recycled materials are then reintegrated into the textile value chain, in the form of fabrics (to remake clothes), fibres (to make yarn), or polymers (to make fibres).

IT IS VERY LIKELY THAT THE ECONOMIC AND INDUSTRIAL LOGICS FOR RECYCLING WILL BE TRANSNATIONAL

As mentioned above, a recent report estimated at 17 the number of players offering fibre-to-fibre recycling, for a total capacity of 1.3 million tonnes per year, although this figure is supposedly higher in reality. Reports (6) and (53) list different units in Europe and worldwide, either pilot, small (less than 1,000 t/year) or larger (in the order of 20,000 to 30,000 t per year). These units use different types of inputs, ranging from production waste to post-consumer waste (from different industries, or from sorting centres described above), with more or less important quality and purity requirements. (1) (53)

In terms of available recycling technologies, the following can be listed (27):

- **Fibre-to-fibre recycling:**
 - Chemical recycling by depolymerization (PET clothing -> PET yarn)
 - Chemical recycling of 100% cotton scraps -> lyocell fibre
 - Mechanical recycling by fibre shredding (100% cotton fabrics -> short cotton fibres to mix with “virgin” cotton (20%)
 - Mechanical recycling by shredding (wool fabrics -> nonwoven fabrics or emergency blankets
- **“Downcycling”/open-loop recycling:**
 - Mechanical recycling by cutting (mixed textiles -> industrial wipes)
 - Mechanical recycling by cutting (mixed textiles -> insulation or composite materials)

SORTING RE-USABLE PRODUCTS REQUIRES PROPERLY TRAINED SORTERS WHO CAN SEPARATE TEXTILES INTO ONE TO SEVERAL HUNDRED CATEGORIES

For chemical recycling, the process gains in efficiency, and therefore in positive environmental impact, with the purity of the inputs. Most of the current processes can only be applied to very pure inputs.

Mechanical recycling requires the extraction of non-textile materials (metals, plastics, etc.), after which fabrics are generally cut to recover the fibres. Other steps (such as the extraction of short fibres) may also be involved. If the materials are sorted by colour, the polluting step of recolouring the fibres can be avoided. It is possible to apply mechanical fibre-to-fibre recycling for blended fibres. It should also be noted that textile recycling is the subject of numerous projects and research work; **new technologies should emerge in the coming years.**

PERSPECTIVES

The general model for textile waste management advocated by various publications can be summarised by figure 10.

While it is very likely that re-use will follow the same patterns as we are currently experiencing because of the limited possibilities for automating sorting (with the difference that export for re-use could be limited by a reduction in supply or bans in the different countries currently importing

used textiles), the development of recycling will have to involve the creation of new, larger sorting and recycling units in order to achieve a sustainable economic balance. Textile recycling is also unlikely to operate on a small scale. It is very likely that the economic and industrial logics for recycling will be transnational, as the national generated quantities for each type of fibre are probably not sufficient to feed regional/national recycling units in most countries. This transition will require significant investments, but also “transitional” economic instruments such

as EPR to allow the development of recycling routes before they reach economic equilibrium. On the public authorities’ side, this will also involve the development of efficient textile waste collection systems, the creation of harmonised legal frameworks to promote circularity, and the limitation of exports of unsorted textiles. However, the development of these sectors should have a significant impact on employment and greenhouse gas emissions (7)

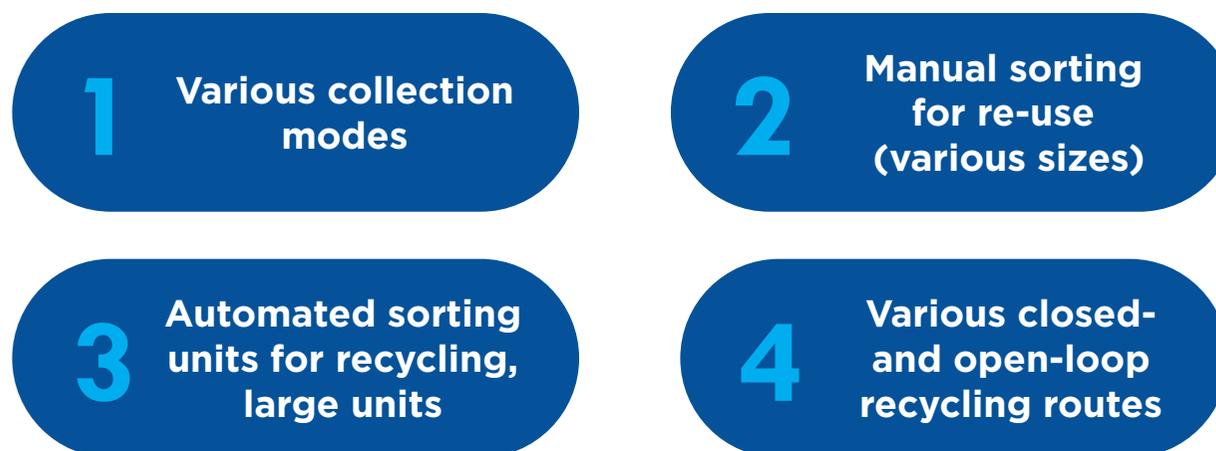


Figure 10: General scheme of textile waste management



GOVERNANCE

While the management of used textiles can be carried out by municipalities, the majority of systems is managed by social economy organisations or by private companies. **There is a challenge of planning, coordination, and monitoring of the different collection systems** that can exist in parallel on a given territory. In addition, other stakeholders may intervene (public authorities granting permits for the installation of textile banks, sometimes against fees, operator of the collection of municipal waste that can accommodate drop-off points in civic amenity sites, etc.). Thus, governance is a crucial point to ensure the proper functioning of the system in general, its readability for waste producers, the proper definition of the roles and responsibilities of the various actors, and the achievement of the objectives set.

LINKS BETWEEN PUBLIC AUTHORITIES AND THE VARIOUS COLLECTION ACTORS

As explained above, **the relationship between public authorities and textile waste management players greatly varies from one territory to another.** It seems that in many territories, there is no extensive local governance, apart from authorisation for the implementation of textile containers for donations of re-used textiles. In other cases, such as in Denmark, the collection of textile waste is considered a municipal competence, and textiles may be subject to separate collection organised by the municipality, although collections of re-usable textiles may be organised in parallel by charity organisations. Finally, other local authorities govern the management of textile waste through calls for tenders by possibly limiting the number of collection organisations operating in parallel, or even entrusting the management of textiles to a single player via a public tender (private company or charity organisation), or by allocating spaces for collection points to a charity organisation. (32)

Many good practices in terms of governance follow the same pattern: a city decides to reorganise the management of textiles on its territory and defines a proper local strategy, under the impetus of an EPR system in place or

to come, or to prepare to an obligation to sort textiles. This generally involves **various actions** (29) (32):

- **Gathering information and data on current collection methods,** performances, and possibly the behaviours and attitudes of inhabitants towards sorting.
- **The establishment of a system of accreditation** of collection and sorting organisations, which sets various criteria relating to the quality of service (accessibility and free collection points for users), transparency (communication of data/certificates on the destination and fate of sorted textiles), the orientation of sorted flows (e.g. the obligation to direct them to a local sorting centre), or even social criteria (integration through employment, etc.)
- **Coordination of collection:** harmonisation of sorting instructions, distribution of collection points, combination of collection methods, or even geographical distribution of actors. For example, the city of Strasbourg decided to allocate to four charity organisations the management of a different area of the city to avoid redundancies.
- **A standardised system** for reporting quantities and destination of sorted flows.

Relations between public authorities and used textile management organisations take various forms, with in some cases prices charged for the installation of textile containers in public spaces or in civic amenity sites, while others pay a fee to collection operators for the organisation of

textile collection. Some cities, such as Rotterdam, operate the collection (setting up and collection of containers) and leave the sorting and sales/trading of collected textiles to charity organisations. (29) (32).

MANY GOOD PRACTICES ON LOCAL GOVERNANCE FOLLOW THE SAME PATTERNS: A CITY DECIDES TO REORGANISE THE MANAGEMENT OF USED TEXTILES ON ITS TERRITORY, AND DEFINES A PROPER LOCAL STRATEGY

TENDER, FOLLOW-UP, TYPE OF CONTRACT, COOPERATION/COMPETITION, COORDINATION

As mentioned above, there are different forms of contracting between public authorities and collection organisations, ranging from simple agreements for the installation of containers, to more structured public contracts.

WRAP has released a guide for local authorities for tenders of textile collection. The guide

presents general recommendations, as well as more concrete good practices to illustrate them. The guide thus highlights the difficulty of implementing an effective and sustainable system with various adverse contextual factors, such as the continuous decline in the value of the collected textiles. It also stresses the need to find a common ground and seek the mutual benefit of the community and the collectors. The consequences of bad relationships can negatively impact the quality of service or littering.

These recommendations include: (45)

- **The possibility of delegating/subcontracting the collection or carrying it out “under direct management”.** It is thus possible to separate the collection operations from processing and trading missions, or to integrate them into the same contract. Setting up a municipal collection gives a guarantee on the service but requires investments and technical/human resources.
- In the case of subcontracting, the contract must **clearly define performance indicators** relating to the service, such as the minimum emptying frequency or the maintenance conditions for collection points.
- In the case of a call for tenders, it is very important to **list award criteria that go beyond the price** (40% quality / 60% price, for example).
- **Longer contracts can provide more stability and better results.**
- There are **different models for setting contract prices**: fixed price (paid annually) which

places economic risks on the collector, or variable income, for which risks are shared (the community pays a price for the service but receives part of the revenue related to resales).

Other modes of collaboration can be identified, such as **partnerships or agreements** that list expectations in terms of service, reporting, communication, and give access to municipal waste treatment services for non-recoverable fractions. It is also possible to support charity organisations via social (subsidies for reintegration) or environmental (support for the quantities collected and/or re-used) measures. Social reintegration subsidies are available in France (for sorting), Flanders, and the Netherlands in different ways. **It is in all cases important to guarantee the financial security of approved actors, especially in the case of collection of all used textiles.** As mentioned above, a certification system helps to ensure the professionalism of stakeholders, and to ensure transparency of information. Such certifications can also help to promote links between collection actors and local sorting and recovery systems, or even to make these links mandatory. (11) (29) (32) (54)

There are several examples of interesting calls for tenders to mention (32):

- The city of Rotterdam, that added specific requirements in its call for tenders, including the need for tenderers to have a local sorting centre, or

the fact that 5% of the total contract price must be used for the employment of disadvantaged people for textile sorting or transport operations. **The new system takes advantage of the strengths of both stakeholders:** the municipality that organises the collection and communicates on these aspects, and the charity organisation ReShare that ensures sorting and sales of used textiles and highlights the social dimension of the system.

- The city of Antwerp, that launched in 2016 a call for tenders on the concession of textile collection to promote circularity, with selection criteria on experience, certification with the Flemish waste agency OVAM, use and provision of local re-use/recycling routes, possibility of networking and link with the local community. **Several local players have decided to join forces** in the form of a cooperative called “De Collectie”, composed of re-use players operating second-hand stores, and historical players in collection. This cooperation has made it possible to optimise the resources allocated, to take advantage of the different strengths of the different actors, and to **adopt a common visual identity**. This common identity was at first a source of conflict, it was then decided to add the logos of the different stakeholders on communication tools and containers, with the prevalence of the “De Collectie” logo.



Figure 11: Collection point «De Collectie» (source: De Collectie)

These two examples make it possible to identify **some success factors related to governance models**, including **the ability to take advantage of the strengths and experience of historical players, the harmonisation of the visual identity of containers to enhance their visibility, and the centralisation of information on collection methods** (including the position of collection points and sorting instructions). It also highlights the importance of promoting consultations and exchanges between the various actors involved in collection. (32)

SOME SUCCESS FACTORS RELATED TO LOCAL GOVERNANCE: CAPITALISE ON THE EXPERIENCE OF HISTORICAL SYSTEM, HARMONISE THE COMMUNICATION AND CENTRALISE THE INFORMATION ON COLLECTION, PROMOTE SYNERGIES AMONG LOCAL PLAYERS

FINANCING AND EXTENDED PRODUCER RESPONSIBILITY

As mentioned in the first part of this report, the *EU Strategy for Sustainable and Circular Textiles* foresees the establishment of EPR systems for textiles, the contours of which are not yet defined. EPR is an instrument that requires producers to finance and/or organise the end-of-life of the products they place on the market, in application of the “polluter pays” principle. EPR has various advantages for circular textile management, including:

- **Impact on eco-design and sustainability of products:** the contributions paid by producers (companies putting textile products on the national market) are supposed to be “eco-modulated”, i.e. subject to bonuses or penalties depending on the durability, recyclability, or recycled content of products. This element is fundamental to reduce

the impact of the end-of-life of textiles and to curb the continuous decline in the quality of products placed on the market;

- **Contribution to the collection, sorting and recovery of end-of-life textiles:** EPR provides for the establishment/improvement of collection and recovery of textiles by the producer, or the coverage of the costs of such a system. In this way, EPR can act as a transitional economic instrument to cover the costs of collecting and processing the non-reusable fraction, which has almost no market value.

DESCRIPTION OF EXISTING AND FUTURE SYSTEMS

There is currently only one operational EPR system: the French EPR system, operated by the producer responsibility organisation ReFashion. Two other systems are being implemented, in Sweden, where EPR was introduced in 2022 and 2023 but will only be operational from 2024, and in the Netherlands, where EPR was introduced in 2023, and for which the first reports on quantities put on the market will also be published in 2024. While it is possible to describe (at least partly) the Swedish and Dutch EPRs, many details remain to be defined by the respective producer responsibility organisations on the implementation and modalities of the EPR (fees, financing of collection methods, etc.), and

it is not yet possible to measure their effects. (1) (35) (36) (37) (49) (52) (57)

Scope: the three EPRs have different scopes, as regards product categories, as well as user categories (households and/or professionals)

- The French EPR includes new textile clothing products, footwear or household linen intended for households and new textile products for the home, excluding upholstery, which are covered by the EPR furniture.
- The Swedish EPR includes household and professional clothing, linen, bags and accessories (excluding footwear) and will use European customs Combined Nomenclature (CN) codes to clarify the scope.
- Dutch EPR includes clothing, professional clothing, and table, bed, and household linen, for household or professional consumers.

General organisation: the general principle of the EPR is the payment by producers (defined in the three systems as companies placing textile products on the market for sale on the national territory, or, in the case of a producer located abroad, a representative present in the country where the EPR is implemented can assume the obligations) of a financial contribution according to the quantities put on the market, with the aim of financing collection and processing of the waste generated at their end-of-life. In Sweden, producers will have to join an approved collection system, notify the Environmental Protection

Objectives	2025	2030
Textiles placed on the market and prepared for re-use or recycled	50%	75%
Textiles placed on the market and prepared for re-use	40%	33%
Textiles placed on the market and re-used in the Netherlands	10%	15%
Share of textiles recycled by fibre-to-fibre recycling	25%	33%

Table 2: Dutch EPR targets for 2025 and 2030

Agency, and ensure that the system actually handles textile waste. It is these collection systems that will have to reach the national objectives set for the EPR system and report to the Environmental Protection Agency. They will also have to comply with other criteria, including free access of collection systems for residents, the provision of collection points in frequented places, collection that promotes re-use and recycling, as well as the coverage of the whole national territory.

Regulatory objectives: The three EPRs have defined different objectives:

- In France, there is a target of 60% collection of textiles placed on the market in 2028, a target of 80% by 2027 of recycling of quantities collected and sorted but not re-used, a target of 90% by 2028 of recycling quantities incorporating at least 90% of synthetic plastic fibre collected and sorted but not re-used, as well as an overall recovery target which provides that no more than 0.5% of the products collected is sent to disposal.

- In the Netherlands, progressive targets are set for the years between 2025 and 2028. These objectives are summarized in table 2.
- **In Sweden**, the 2 main objectives are the re-use/recycling of at least 90% of textiles collected in 2028, and the reduction of 70% of textiles sent to disposal (80% in 2032 and 90% in 2036).

Organisations and cost coverage of collection and recovery: in France, collection can be carried out by an organisation approved by ReFashion (called a holder of voluntary collection points), and sorting must be carried out by a sorting operator who meets the specifications set by the producer responsibility organisation. For the other systems, the modalities and responsibilities still need to be defined. However, the Swedish system intends to preserve existing systems, which will have the choice of continuing their activities or integrating the new “official” collection systems. Other collection methods will be allowed: collection in shops, by remanufacturing actors, and by municipal waste

management companies, but they will have to be integrated into approved collection systems. For the Netherlands, it is foreseen that municipalities will retain their responsibility for the collection of textiles (which they will be obliged to collect separately in 2025).

Contribution of producers: The reporting modalities and the fees for producers remain to be defined for the Dutch and Swedish systems. In France, below 5,000 pieces/year, a simplified scale applies (see Figure 12).

Category	Price per piece
 Clothes	0,3897 €
 Shoes	0,4326 €
 Home textiles	0,4395 €

Figure 12: Simplified reporting pricing for French EPR (source: ReFashion)

Otherwise, the detailed scale applies. This scale sets a price per piece according to the type of product (clothing, shoes, household linen), the product line (pants, low shoes, etc.), and the “department” (child, adult woman, adult man). Each category is defined by a reference code and a piece rate (see Figure 13).³⁰

Ligne de produits	Rayon	Code référence Refashion	Barème standard 2023
Chaussures basses	Enfant (Pointure du 27 au 36)	C-01-E-EMO	0,0419 €
Chaussures basses	Femme adulte (Pointure ≥ 37)	C-01-F-EMO	0,0730 €
Chaussures basses	Homme adulte (Pointure ≥ 37)	C-01-H-EMO	0,1058 €
Chaussures de type «bottines»	Enfant (Pointure du 27 au 36)	C-02-E-EMO	0,0720 €
Chaussures de type «bottines»	Femme adulte (Pointure ≥ 37)	C-02-F-EMO	0,0987 €
Chaussures de type «bottines»	Homme adulte (Pointure ≥ 37)	C-02-H-EMO	0,1199 €
Chaussures de type «bottes»	Enfant (Pointure du 27 au 36)	C-03-E-EMO	0,0795 €
Chaussures de type «bottes»	Femme adulte (Pointure ≥ 37)	C-03-F-EMO	0,1286 €
Chaussures de type «bottes»	Homme adulte (Pointure ≥ 37)	C-03-H-EMO	0,1442 €
Chaussures de type «baskets»	Enfant (Pointure du 27 au 36)	C-04-E-EMO	0,0594 €
Chaussures de type «baskets»	Femme adulte (Pointure ≥ 37)	C-04-F-EMO	0,0759 €
Chaussures de type «baskets»	Homme adulte (Pointure ≥ 37)	C-04-H-EMO	0,0837 €
Chaussures de bébé (0-3 ans)	Bébé (Pointure du 19 au 26)	C-06-B-EMO	0,0307 €
Chaussures d'été	Enfant (Pointure du 27 au 36)	C-07-E-EMO	0,0416 €
Chaussures d'été	Femme adulte (Pointure ≥ 37)	C-07-F-EMO	0,0599 €
Chaussures d'été	Homme adulte (Pointure ≥ 37)	C-07-H-EMO	0,0595 €
Chaussures d'intérieur	Homme-Femme-Enfant	C-08-N-EMO	0,0371 €

Figure 13: Extract from the detailed scale of the French EPR (Source: ReFashion)

Different eco-modulations apply, whose details are available online³¹. This system has gradually become more complex, and bonuses apply for different criteria (sustainability, obtaining environmental labels, recycled content), with

specific criteria and amounts that depend on the quantity placed on the market, and the type of product for sustainability criteria:

- Sustainability bonuses:** they apply differently to 10 product categories, at a rate of €0.70 for the first 100,000 pieces placed on the market, and €0.07 for the following ones. Multiplying factors apply depending on the type of product. For each product category, durability criteria relating to resistance to deformation, appearance after washing, abrasion resistance, etc. are defined (usually in relation to French or ISO standards). These criteria are presented in the appendix to the [Re-Fashion specifications](#).
- Bonuses for obtaining an ecolabel:** a bonus of €0.30 per piece is allocated for the first 100,000 pieces placed on the market, (€ 0.03 for the following), to obtain an ecolabel among 8 (ECOCERT TEXTILE, OEKO-TEX MADE IN GREEN, BLUESIGN, FAIRTRADE, EUROPEAN ECOLABEL, DEMETER, GOTS, and BIORE). The bonuses are limited to one per reference and cannot be combined in the case of multiple certifications.
- Bonuses for the incorporation of recycled material:** a bonus of €1,000/tonne is allocated in the case of use of materials from the recycling of post-consumer textile, linen and shoes waste collected or supported by a PRO-approved player, and €500/tonne for recycled materials from the open-loop recycling of waste collected or supported by an

approved PRO, excluding food grade plastic resin. Bonuses are not granted if the recycled material comes from production residues or unsold items. A proximity criterion will also have to be introduced.

Financing of the collection and sorting: these elements are not defined for the Dutch and Swedish systems. In France, the main lines of the financing of collection and sorting are defined in the [ReFashion specifications](#):

- Collection costs:** they are covered by the PRO according to a framework contract established with the organisation managing the collection (the local authority, charity organisation, or other), provided that the textiles are handed over to the PRO or a sorting operator with a contract with the PRO.
- Sorting costs:** a standard contract is established between the PRO and the sorting operator, which includes in particular “*the minimum objective of integration of unemployed people, encountering particular social and professional difficulties set for the sorting operator under agreement with the eco-organization is 15% of the working hours necessary for sorting operations*”. The financial support is composed of different types of support:
 - Basic support at 80 €/t in case of material or energy recovery.
 - Additional support for each tonne recycled (€111/t in 2023, gradually

30 Refashion (2023)

31 Refashion (2023)

increasing to €130/t in 2028)

- Additional support for each tonne recovered as refuse-derived fuel (RDF) (€80/t in 2023, gradually decreasing to €20/t in 2028)
- Support for energy recovery at €20/t
- There is also support for “over-sorting” for non-reusable textiles that are subject to additional sorting for recycling. It is defined by the PRO.
- **Development support:** the PRO also supports the increase in sorting capacities with a support of €100 over one year for additional tonnes sorted compared to the unit’s reference sorting capacity. In the case of an investment plan, the PRO grants an investment support of €125 per tonnes developed over one year, followed by €100 for 3 years, and €50 the 4th year. The PRO also sets performance criteria, and the development support is also modulated in relation to a professional reintegration objective.
- **Communication support:** several communication support systems are offered by the PRO, intended for local authorities. To be eligible, these actions must comply with the 5 key awareness messages (reminder of sorting instructions, signage, location of collection points, information on the treatment of used textiles, incentive for repair). Supports are based on the number of people in the communities, and cover different activities, such as punctual collection

events, communication activities targeting young people, workshops for citizens, and communication in regional medias.

Performances: it seems that the implementation of EPR in France is concomitant with the gradual increase of collection points (in 2021 there is about 1 collection point for 1,500 inhabitants), as well as the quantities collected which amount to 3.6 kg/cap/year for a total of 10.5 kg/cap/year put on the market. For the collection rate, the target set for 2021 has not been reached; It should be noted that there are significant disparities between the different regions, and that the entire population is not properly covered. The recovery target set for 2021 has been achieved, with 58% of sorted textiles sent for re-use (local and export), 32% for recycling, and 9% for energy recovery. It should be noted that the objective of 1 collection point for 1500 inhabitants is not reached in all regions, particularly in the Paris Region which also show collection performances below the national average. Some publications also consider that sorting support does not cover the costs of the used textile management players and that communication support is insufficient, and that sorting instructions are not sufficiently clear and well-communicated (28)

Various publications have also examined the impact of eco-modulated fees on the eco-design of textiles. Previous scales covered recycled

content as well as sustainability criteria. However, it was considered that the reductions related to these eco-modulations did not cover the administrative costs for obtaining the necessary certifications. Of the 2.6 billion parts put on the market in 2016, only 0.004% were subject to such a reduction linked with the use of recycled materials. The results were slightly better for durability, while remaining very low. Of the 2.6 billion parts put on the market in 2017, only 0.3% are subject to “durability” reduction. (28) (29)

Repair Fund: The Repair Fund has been set up in 2023 by ReFashion at the request of the public authorities following the latest “Anti-Waste Law”. This fund, financed by contributions from producers, aims to finance authorised repairers (independent or franchised repairers, in networks, or brands and teachers offering repair systems). These subsidies should make it possible to reduce the cost borne by consumers to have their products repaired via a “repair bonus”. In addition, complementary actions will make it possible to finance communication actions, training of repairers, etc. The bonus should be 20% of the estimated cost of the repair. Labels have started in summer 2023 and repair bonuses will be launched in autumn 2023 (37) (51)

GENERAL RECOMMENDATIONS ON THE IMPLEMENTATION OF A TEXTILE EPR

Various publications have proposed general recommendations for the establishment of an EPR system. These recommendations are summarised below (10) (24) (29) (35):

- **Clear definition of producers** (including online sales platforms) and product categories included (clothing, household linen, and footwear are regularly cited). Start with an easy-to-understand scope, use terminology or an existing registration system, e.g. European CN codes used for customs (CN codes 61, 62, 63 04 and 63 07).
- **Targets focused on re-use and recycling**, with targets on collection rates and collection coverage, and possibly targets on closed-loop recycling.
- **Define a clear monitoring and reporting system**, including definitions (for re-use, mechanical recycling, chemical recycling, etc.), measurement points, calculation methods, etc. Beware of the data on the quantities put on the market when using them for collection/recycling rates, because of the lifespan of the products: the quantities placed on the market during year n will for the most part become waste only in the following years.
- **Define simple eco-modulations at first**, which can become more complex gradually. It is

important that the **amounts are large enough for any eco-modulations to be incentivising and that the bonuses cover the costs for obtaining the necessary certifications and labels.** One report considers that to be effective, the eco-contribution must amount to about 2% to 3% of the price of the garment. Some reports also list existing and measurable criteria that can act as eco-modulation, such as labels (Nordic Swan, EU ecolabel, Global Organic Textile Standards), sustainability criteria (standards on colour fastness, resistance to washing, deformation, or pilling), or recyclability criteria based on the declaration of fibre content regulated by Regulation EU No 1007/2011, which are close to the ones used by ReFashion.

- **Propose quality and transparency criteria** to approve the various collection and sorting operators.

Other recommendations are cited, such as **the interest of preserving charity organisations via social criteria**, in particular for their role for labour-intensive activities such as sorting for re-use and upcycling, or the need to define other instruments in parallel: reduction of VAT on repair and upcycling, limits on the discharge of microplastics, inclusion of textile care and repair in school curricula, and the need to create spaces for dialogue between different stakeholders. (10) (24) (29)

EPR SCHEMES ON TEXTILES SHOULD NOT ONLY FOCUS ON COLLECTION AND RE-USE OBJECTIVES, BUT ALSO PROMOTE ECO-DESIGN THROUGH INCENTIVISING ECO-MODULATED FEES

TRANSITION FROM A COLLECTION FOR RE-USE TO AN “ALL TEXTILE “ COLLECTION

Various reports address the issue of extending sorting instructions following the obligation to sort textiles. In many documented practical cases, the difficulties of extending the sorting guidelines to all textile waste is reported, which tends to **increase collection and sorting costs without increasing the revenues to cover these increases.** In addition to these considerations, contextual elements make it more challenging: **declining demand in Africa** and possible export bans in different countries (East Africa, China), **increased demand for recycled fibres**, and **economic fragility of the various players in the management of used textiles.** According to various experts, the impact of doubling the quantities collected in Europe may not

significantly impact the quantity of the “cream” collected: this part is already collected by existing collections for re-use systems, and the decline in the general quality of textiles limits the potential increase linked with higher capture rates. However, such an increase in the quantities collected in Europe could lower the price of other fractions, before the market rebalances: the quality of the textiles collected should decrease (in the case of extension of sorting instructions to non-reusable textiles), and the size of the world market for used textiles should not change at first (before the creation of new recycling routes).

It is therefore important to find other sources of funding for the additional collected quantities, in the absence of a large market for high value recycling. The following recommendations are made (33):

- **Improve the monitoring** of quantities and quality to better understand developments.
- **Establish a certification system for textile management stakeholders** to ensure transparency and minimum social and environmental criteria.
- **Economically support sorting and collection actors** (via an EPR, employment support, or more direct support for collection).
- **Reduce administrative burdens** for collection, sorting, and export (permits for collection and treatment, but especially relating to imports and exports of textile waste).

IT IS IMPORTANT TO FIND OTHER SOURCES OF FUNDING FOR THE ADDITIONAL COLLECTED QUANTITIES, IN THE ABSENCE OF A LARGE MARKET FOR HIGH VALUE RECYCLING

EPR AND SOCIAL ECONOMY

The introduction of a new extended producer responsibility system can impact existing sectors, particularly those supported by the social economy. Indeed, EPR can lead to **the establishment of competing collection and recycling schemes or modify the conditions of access to the generated quantities of used textiles**. EPR systems on products involving a share of re-use are especially concerned by this: textiles, but also WEEE, or furniture.

A quick overview of the various mechanisms put in place to “preserve” the place of social economy actors following the implementation of a EPR is proposed below:

- The French law No. 2020-105 of 10 February 2020 against waste and for the circular economy, known as the “Anti-waste” law³², includes various

provisions mentioning the actors of the social economy, in particular with regard to the provision of unsold non-food items by producers or to **guarantee the availability of means and instructions for the maintenance of products placed on the market**, the transfer of temporary and dismantlable buildings that public organisations no longer use, or **the obligation for local authorities to guarantee access to municipal waste civic amenity sites via a contract or agreement**. The law also requires the participation of the social economy organisations in the governance of PRO.

- The national regulations set for several PROs have **defined objectives related to the social economy and re-use organisations**. Thus, the specifications for the EPR sector of furniture waste have set objectives on the share of waste collected selectively made available to social economy players for preparation for re-use. These provisions are accompanied by an “aid for access to the collected quantities”, with a quality criterion on the quantities made available (at least 60% re-use possible), as well as the establishment of a specific support scale for the social economy.³³

- During the implementation of the EPR on furniture and to meet the requirements of making available part of the quantities mentioned in the previous point, the PRO Eco-Mobilier signed a **national agreement with two major players in the social economy** in France that were already active in the field of repair and re-use, for which furniture

32 Ministères Ecologie, Energie, Territoires (2020)

33 Ministères Ecologie, Energie, Territoires (2017)

is a very important fraction. The agreement included a commitment to joint communication actions on furniture donation, the provision by the PRO of containers for the take-back of non-reusable furniture, and support for collection on demand or as a voluntary contribution.³⁴

- The “**Re-use Fund**” was introduced in France in 2022 and is entirely intended for social economy organisations. EPR schemes for electrical and electronic products, furniture, textiles or sports, DIY and gardening goods will contribute 5% of the producers’ fees to these funds.

These different instruments are aligned with the recommendations of the [Rre-use Network](#) on the role of the social economy for EPR. Rre-use considers that the application of the waste hierarchy and the principle of proximity “naturally” strengthens the position of social economy and re-use organisations, via dedicated objectives, funding for re-use, access to the sorted quantities, and eco-modulations for durability and reparability. It also recommends measuring the impacts of a new EPR on pre-existing social economy players before implementation, including them in governance, and defining specific instruments (such as the France re-use fund) to possibly compensate for the competitive disadvantage linked to the social nature (reintegration jobs) of the social economy.³⁵

There are complementary instruments to EPR to promote re-use and indirectly social economy activities. Rre-use lists different examples:³⁶

- **Reduction or exemption from VAT for repair activities**, collection of products for re-use, re-use (often in connection with the training and reintegration of precarious people), or on second-hand sale by charity organisations.
- **Reductions in wage costs for repair activities** on certain types of products.
- **Tax reductions for corporate or individual donations** to non-profit re-employment organizations.

COLLABORATIVE PREPARATION FOR EPR IMPLEMENTATION

The region of Catalonia, Spain, has set up a **process of voluntary agreement with the various stakeholders of the textile sector: The Agreement for a Circular Fashion** (“El Pacte per teixir un futur més sostenible”). This voluntary agreement is set up by the Catalan Region through the Waste Agency of Catalonia to bring together the different stakeholders of the textile industry and second-hand sector in order to improve the circularity of textiles and prepare the implementation of an EPR system in 2025.

The agreement originated from an Interreg project ([CircE](#)) which made it possible to take stock of the situation of textile management and to analyse possible solutions to make them more circular. In 2020, the contours of the agreement were defined, and 3 committees were set up to discuss the objectives, governance and funding, and communication around the agreement. In January 2022, a general assembly validated the content of the Agreement. Since then, different working groups have been organised to discuss collection, treatment, eco-design, and communication, with the aim of preparing EPR in 2025.

Various targets have been set, including reducing waste generation by 5 to 10%, a collection rate of 30 percent, and increasing the re-use and recycling rate to 60 percent and 40 percent, respectively. At the end of 2022, the Agreement had 70 participants. (56)

34 La Gazette des Communes (2013)

35 Rre-use (2020)

36 Rre-use (2017)

GOOD PRACTICES AND RECOMMENDATIONS RELATED TO PROFESSIONAL TEXTILES

As mentioned above, good practices and recommendations on professional textiles are relatively rare. There is little consolidated data on associated quantities and treatment pathways, and while there appear to be repair and recycling routes, it seems that most of these textiles are sent to downcycling, energy recovery, or disposal.

It is interesting to note that **the Swedish and Dutch EPRs included part of the professional textile products in the scope** (professional clothing and flat linen). This point can be considered as an interesting, good practice to promote the sorting and recovery of these fractions, even if it is not yet possible to measure their impact. As a general rule, **these two types of professional textile waste can be considered the “simplest” to address at first.**

EXISTING INITIATIVES

It is possible to list different initiatives and projects that specifically target professional textiles. These projects are generally small-scale:

- The FRIVEP project (Industrial re-use and recycling routes for professional clothing): this is the product of one of the “Green Deals” set up in 2016 by the French Ministry of the Environment, which involved various companies (La Poste, SNCF, etc.) in a public-private partnership to develop the recycling and re-use of professional clothing. The project experimented and then put into practice technologies for the re-use and recycling of professional clothing. The results of the project included a booklet on eco-design, presented below. It also led to the FIREX project described earlier (1) (41)
- The Telaketju platform was implemented in Finland to foster the emergence of circular companies in the textile industry. Bringing together the entire value chain, the platform has implemented financial tools and calls for research and development projects. Various projects have thus emerged, such as projects to promote consumer information and test collection devices, or the creation of the LSJH sorting centre by Lounais-Suomen Jätehuolto Oy presented above. The project effectively connected the different stakeholders. However, projects are still hampered by the lack of markets for recycled textiles.
- Recygo, a French company created in 2018

by La Poste and Suez, seeks to develop and promote the sorting and collection of “diffuse” professional waste to ensure logistics and recycling. It recently launched the “Eco Verso” range of logistics solutions to enable the re-use and recovery of diffuse waste (including TLC) via different collection points (shops, companies, etc.), via recurring or one-off collections. This project also aims to ensure the traceability and recovery of waste in France. It was launched in April 2023.

ECO-DESIGN AND CALLS FOR TENDERS TO IMPROVE THE END-OF-LIFE OF TEXTILES

The vast majority of identified good practices and recommendations for professional textiles relate to **guides and recommendations on eco-design, and on how to integrate end-of-life considerations into tenders** related to the purchase or rental of textile products. These different guides are aimed at different sectors of activity (hotels, care units), or focus on specific products (e.g., professional clothing).

The main recommendations can be summarised as follows (5) (6) (16) (21) (27) (31) (34):

- **Sustainability:** ensure visual consistency between the different ranges of uniforms or linen so that they can co-exist. Acquire or rent linen without logos if possible. Include a maintenance

service or maintenance training system to extend the life of the products. Opt for reinforcements on vulnerable areas on clothing or provide easily changeable or modular parts (example: removable jackets, detachable reflective parts, etc.). Some fibres (such as polyester) are more resistant to washing.

- **Use Total Costs of Ownership (TCO)** rather than purchase prices to estimate all costs related to product maintenance and end-of-life when comparing different offers.
- **Repair:** train staff to recognise signs of wear and perform simple repairs. In case of rental, include provisions on the repair of products.
- **Re-use:** allow logos to be easily removed. Include provisions on the re-use of end-of-life textiles, in link with local re-use companies.
- **Recyclability:** buy/rent monofibres linen or clothing, avoid water-repellent or antibacterial treatments if they are not essential, check for additives that could disrupt recycling. Simplify the design of clothes as much as possible to avoid unnecessary accessories or hard points. Use the same fibres for seams, fabrics, and accessories.
- **Ownership and warranty:** give agents the opportunity to renew their professional clothing themselves (excluding PPE) to avoid the automatic renewal of products that are still usable, require guarantees of 1 to 2 years (repair). Giving ownership of professional clothing to the company makes it possible to recover and recondition them in the event of the departure of the agents.
- **Dialogue with the market:** to assess the

relevance and validity of the sustainability criteria, submit a first version to suppliers for critical review.

- **Comfort:** involve staff to validate the functionality and comfort of uniforms.

It seems that these **rental or purchase practices constitute an interesting and relevant lever to improve the circularity of textile products and increase the chances of recovery at the end of their life**. However, these steps can be complicated and tedious for small structures, and the right offer is not necessarily available. It is therefore necessary to define activities to train, support and equip buyers of professional textiles in their efforts. (31)

**RENTAL OR PURCHASE PRACTICES
CONSTITUTE AN INTERESTING AND
RELEVANT LEVER TO IMPROVE
THE CIRCULARITY OF TEXTILE
PRODUCTS AND INCREASE THE
CHANCES OF RECOVERY AT THE END
OF THEIR LIFE**

CONCLUSION OF THE CROSS-ANALYSIS

As explained in the introduction to this section, there is little insight on textile waste management, probably related to the fact that consolidated data are scarce, that textile management is generally fragmented, and that there is not necessarily a strong regulatory framework in the different European countries with the exception of the EPR system in France. While an increasing number of territories have taken up the subject and developed territorial strategies, it remains difficult to compare approaches in a reliable way and to identify indisputably “best practices” resulting in high performances, unlike other waste streams for which comparable data are available as well as well-identified frontrunning territories.

The cross-analysis of practical cases and more general recommendations resulting from the analysis of barriers and opportunities nevertheless make it possible to list some general recommendations, in particular:

- The need to develop **territorial governance** for textile waste management, which involves the coordination and supervision of the various local players, the collection of information on the basis of reliable reporting, the definition of clear objectives and their monitoring, the promotion of second-hand stores, and the transparency on the fate and destinations of the collected quantities;
- The need to **consolidate and diversify collection methods** to optimise the capture of the generated quantities, which involves an efficient network of textile containers, but also the implementation of alternative collection methods that meet the constraints of certain types of housing or population;
- For the extension of separate collection to non-reusable textile waste, the **implementation of an EPR system** that makes it possible to overcome the fragility of the economic model of textile sorting and recycling, and to promote eco-design to limit the loss of value of the used textiles.
- The need to **monitor the development of new sectors** and to collaborate on a wider scale on the creation of an industrial textile recycling sector.
- For professional textiles, the generalisation of **calls for tenders taking into account criteria on the repair and end of life of products**, in connection with producers, rental and maintenance services, and users.

GENERAL RECOMMENDATIONS FOR THE LOCAL MANAGEMENT OF USED TEXTILES

1 ESTABLISH A LOCAL GOVERNANCE ON TEXTILE MANAGEMENT

Many local good practices have been driven by the establishment of a stronger local governance for textile management. This governance generally aims to harmonise and coordinate the collection offer, to define the roles and responsibilities for the organisations in charge of collection and sorting, and to set up a monitoring system to follow the progress made.

It is therefore recommended to set up a local and collaborative governance for the management of used textiles, at municipal or intercommunal level. This governance could be structured around different points:

- The definition of **quantitative targets** on collection and treatment, but also on the availability of collection points, to guarantee access to sorting for the inhabitants of the different municipalities.
- A system of **multi-stakeholder agreements** between the local authority, collection and sorting operators for used textiles and possibly municipal waste, and any other relevant stakeholder, which would specify the roles and responsibilities of the various players in terms of availability of collection points, collection service, reporting, and transparency on the future of collected textiles. Different options are available: contracts, call for tenders, certifications, etc.
- The definition of a **homogeneous reporting system** between the different actors and a more detailed monitoring of the collection performance and the destination of the collected fractions, emphasising the importance of data transparency.
- It is advisable **to build on the experience and infrastructure of existing players**, and in the case of charity organisations, of their appeal and positive image for consumers. These players might already have a local collection and sorting system, and a certain visibility among residents. It is necessary to remind the importance of manual sorting for re-use and its natural connection with social economy and professional reintegration. The place allocated to the social economy for textile management (in relation to other types of actors) is also a political choice, which can be promoted by the use of social criteria (e.g. on professional reintegration) in the context of multi-party agreements.
- **Consultation and collaboration** between the various local players are also recommended; it is preferable to define a shared vision and a collection and management system that is based on the complementarity of the different actors rather than on their competition.
- The **homogeneity of the collection system** for

the inhabitants is also important to consider. It is important to ensure the consistency of sorting instructions between the different collection organisations, as well as for key messages and communication, and to promote the visibility of collection points via a common label or a common visual identity for containers. It is also important to centralise the information on collection points for instance on the website of the municipal waste management system.

IT IS RECOMMENDED TO SET UP A LOCAL AND COLLABORATIVE GOVERNANCE FOR THE MANAGEMENT OF USED TEXTILES, AT MUNICIPAL OR INTERCOMMUNAL LEVEL

2 STRENGTHEN EXISTING COLLECTION METHODS, AND IDENTIFY ALTERNATIVE COLLECTION METHODS

The analysis of good practices shows the **importance of diversifying collection methods** to improve the collection rate and overcome specific difficulties.

- **Textile containers** are a simple and flexible solution to develop the collection, even if some case studies report a lesser quality than with in-store collection. **In many territories, they constitute the backbone of the collection system**, yet it is important to implement a dense enough network to ensure a satisfying capture rate. It is difficult to provide a definitive value for the density, recommendations generally range between 1 collection points for 1000 to 1 point for 1500 inhabitants. Other elements are important: average distance

between inhabitants and collection points, proper maintenance (avoid overfilling or littering, ensure cleanliness), strategic location. Monitoring the individual performance of the different collection points can help to better organise the network.

- Create synergies with municipal waste collection organisations and street cleaning services for the monitoring and maintenance of collection points (cleanliness, filling and overflowing, etc.), and limit inconvenience.
- **Identify underperforming areas**, identify difficulties through feedback from field actors, or surveys on user behaviours and perception (knowledge of collection methods and the system in general, sorting brakes, etc.), and **define alternative collection methods**: collection points in public places or at next to large, multi-family buildings, one-off collection points/destocking, etc., possibly taking advantage of other collection schemes (civic amenity sites, mobile collection points, etc.).

IN MANY TERRITORIES, TEXTILE CONTAINERS CONSTITUTE THE BACKBONE OF THE COLLECTION SYSTEM

3 PROMOTE TEXTILE WASTE PREVENTION AND SECOND-HAND BUYING

The production of textiles and their consumption have a significant impact on the environment, so it is a priority to **promote any action to limit the consumption of textile products**, or to extend their lifespan. While many instruments are in the hands of producers, several actions within the reach of public authorities can be highlighted:

- In consultation with second-hand shops, start thinking about ways to **increase the attractiveness and sales of second-hand textiles**: shared communication, support for visibility and enhancement of the offer (online sales, marketing, etc.).
- Set up **communication actions on the cleaning and care of textile products, the impact of textile consumption, and second-hand** with consumers to increase their lifespan. It is important to consider possible communications on textile collection (new collection systems, extension of sorting instructions, etc.)

before launching a communication on textile consumption to limit confusion and not to multiply concrete messages in a too short period of time, as mentioned in the WRAP’s recommendations on communication on the prevention and sorting of biowaste³⁷. It is thus possible to focus communication efforts on sorting during the implementation of the sorting obligation and communicate a few months later on the progress observed and the additional preventive actions to be considered.

SET UP COMMUNICATION ACTIONS ON THE CLEANING AND CARE OF TEXTILE PRODUCTS, THE IMPACT OF TEXTILE CONSUMPTION, AND SECOND-HAND

4 EXTEND SORTING INSTRUCTIONS ONLY WHEN AN EPR SYSTEM IS AVAILABLE

The various publications and projects identified report the lack of routes for non-reusable textiles, which considerably limits the economic interest of collection and sorting for recycling. Many experiences on the extension of sorting instructions also report the fact that this extension weakens existing economic models, mechanically increasing collection and sorting costs to absorb additional quantities, without increasing the revenue generated. In the absence of viable outlets, **textile waste collection is only viable if “transitional” economic instruments such as EPR are put in place.** It is therefore recommended to **wait for the implementation of an EPR system or any other support mechanism before targeting non-reusable fractions.** It should also be remembered that current recycling routes (mainly open loop) do generally have a significant environmental impact that justifies the additional costs.

When extending sorting instructions, the following points of attention should be kept in mind:

- The need to **promote the extension of sorting instructions with intensive communication:** changes in sorting instructions are often difficult for residents to grasp. It is therefore necessary to ensure that the communication tools reach the different inhabitants, and that the communication explains both the instructions themselves but also the reasons behind the changes.
- **Dual-flow collection** (i.e. collection re-usable and non-re-usable fractions in parallel) is **not recommended**, due to the lack of evidence on their ability to collect additional quantities without diverting re-usable textiles from collection for re-use schemes. However, if this approach is considered, it is recommended to carry out experiments as a first step (analysis of the composition of the flows collected and the presence or absence of reusable textiles in the collections for recyclable textiles), and to consider at least an equivalent practicality for the collections of non-reusable textiles in order not to capture re-usable flows.
- **Strengthen manual sorting capacities for re-use**, possibly by pooling facilities between the various actors in order to optimise costs.

Information collected on existing or planned automated sorting units for recycling generally indicates sorting capacities ranging from 20,000 to 30,000 tonnes per year. If it is considered that a small half of used textile is potentially re-usable, a local sorting centre for recycling should be considered only if used textile generation represents about at least 40,000 tonnes. It should also be noted that the various publications identified mainly provide for the creation of large units to optimise investment and operating costs.

IT IS RECOMMENDED TO WAIT FOR THE IMPLEMENTATION OF AN EPR SYSTEM OR ANY OTHER SUPPORT MECHANISM BEFORE TARGETING NON-REUSABLE FRACTIONS

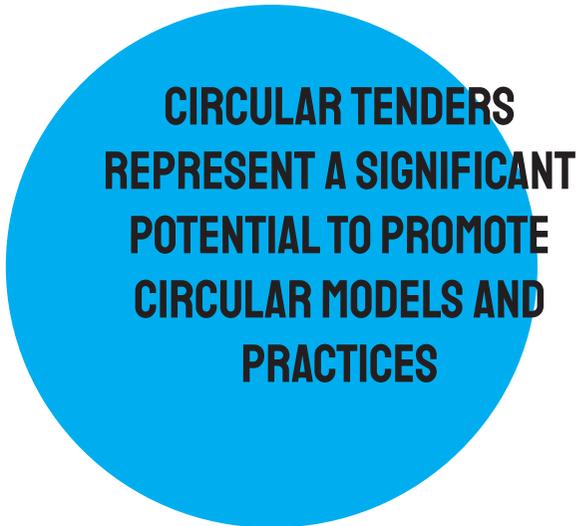
5 SUPPORT CIRCULAR TENDERS FOR PROFESSIONAL TEXTILES

Various publications identified show a lack of knowledge on non-household textiles and seem to indicate that their recovery is still very limited. However, several good practices on the potential of calls for tenders (public or private) to promote the circularity of professional textiles have been identified. It seems that circular tenders represent a significant potential to promote circular models and practices, and to foster more sustainable end-of-life solutions for professional textiles. It is interesting to consider the following steps:

- **Approach local or national textile federations** to identify the needs and constraints of the various players, both the users of professional textiles and the available circular offer.
- Approach companies involved in the **maintenance and rental of professional textiles** to better understand the consumption, products, practices, and possibilities of valorisation of end-of-life textiles.
- **Offer guides and training** by sector of activity to highlight the possibilities and advantages of circularity criteria, capitalising on existing tools and guides.

- Apply these principles of circularity in **public tenders** and use these concrete experiences to promote these practices to other organisations: by taking advantage of the experience and testimony of public buyers, it will be easier to convince and remove the apprehensions of private buyers.

In addition, and as mentioned above, it is advisable to consider the inclusion **of professional clothing and flat linen** (sheets, table linen, etc.) in the future EPR to promote their valorisation.



**CIRCULAR TENDERS
REPRESENT A SIGNIFICANT
POTENTIAL TO PROMOTE
CIRCULAR MODELS AND
PRACTICES**

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