

Extended Producer Responsibility in the Danish textile sector

Assessing the optimal development and implementation



TEKSTILREVOLUTIONEN

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EXECUTIVE SUMMARY

In this document we contribute to the policy debate on Extended Producer Responsibility (EPR) for textiles in Denmark. The EPR scheme is a policy approach that assigns responsibility to producers for their products' environmental impact during production, use, and end of life. Currently, across the European Union, EPR schemes are in operation for products like electronics, batteries, and cars and has in France been implemented for textiles since 2007. However, while several European countries including Sweden and the Netherlands are in process of developing their schemes, the Danish government has been hesitant, only awaiting the EU to make a move.

Yet, while first mover advantages are likely to occur in the transition to the circular economy, it makes sense to get the transition rolling in Denmark through policies that prepare Danish businesses for the upcoming change. Implementing the EPR scheme would foster leading expertise in product-as-a-service business models and circularity while facilitating technological innovation – thus generating economic growth and creating jobs.

This examination of a potential textile EPR scheme in Denmark starts by defining the policy approach. After having presented the requirements for EPR schemes defined by the EU in the Waste Framework Directive, textile EPR schemes from three different countries are reviewed. Drawing from these lessons and with the Danish textile flows in mind, Tekstilrevolutionen's take on a Danish textile EPR is presented.

A key conclusion is that a progressive EPR scheme should not merely function as a waste management arrangement, but the responsibility should embrace the entire lifecycle of a product. In other words, the scheme should be circular not linear.

Tekstilrevolutionen supports an Extended Producer Responsibility on textiles in Denmark.



KEY FINDINGS

Circular EPR, not linear

EPR schemes do not necessarily foster circularity. Most of the current EPR schemes are designed for linear economy models, concentrating on the collection of fees to finance waste management. To support circularity, EPR should not just be a polluters-pay free pass, but actually incentivize producers to engage in a more circular textile industry.

Eco-modulation

The EPR fees should not only seek to cover the costs of waste management but cover the actual end-of-life costs of a product. This includes costs for collection, transport and treatment, awareness raising, administrative issues, and forward-looking funding. Environmental externalities should also be taken into account. Further, fees must prioritize and follow the waste hierarchy, for example, by applying eco-modulated fees incentivizing efforts towards eco-design and waste prevention in textile production.

Funding

The EPR scheme must support circular development through annually allocated funds to finance initiatives such as research on improving the eco-design of products, development and implementation of circular business models, and emerging innovative technologies. In other words, an EPR scheme should prevent environmental harm, while financing the transition towards a circular textile industry.

Targets based on the waste hierarchy

Ambitious targets must be formulated that ensure recirculation of resources through circular business models, while prioritising the waste hierarchy. These circularity targets must be far-sighted, and must be updated regularly to keep up with industry developments.

Supplementary measures

EPR is one mechanism that can accelerate the transformation of the textile industry, but given the urgency of the situation, it is critical to implement other measures concurrently. This includes additional legislation and regulation to encourage eco-design of textiles, support circular business models, and influence consumer behaviour.



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INTRODUCTION

Since 1975, the global production of textile fibres has almost tripled¹. The current trend of growing demand for apparel products does not seem to be slowing. Meanwhile, the production of each item affects the natural environment through water consumption, emission of greenhouse gasses, and the release of toxic chemicals. The apparel industry is presently based on the linear take-make-dispose model combined with the fast fashion trend that is unerringly based on ever increasing sales. Globalisation and the liberalisation of international trade has in recent decades created steep competition between textile producers in developing countries, resulting in a 30% drop in clothing prices in the EU between 1996 and 2018, relative to inflation². Such low prices play a key role in the current linear model, since it is often cheaper to buy a new product than repair old ones. Accordingly, Europeans consume an average of 26 kg of textiles per year and discard 11 kg³. This is neither an environmentally nor an economically viable system. More than USD 500 billions of value is lost each year to the underutilisation of clothes and a lack of textile waste recycling⁴.

As a step to reconfigure this madness, the European Union (EU) launched the European Green Deal in 2019, emphasising a commitment to creating a sustainable, circular economy and identified textile production as a “key product value chain” for circular economy in the 2020 Circular Economy Action Plan⁵. Later, the Danish government made similar commitments in the Danish Action Plan for Circular Economy. Creating a circular economy would disincentive the development of new products and instead focus on keeping existing products in circulation through improved product durability, circular business models, and changes in consumer behaviour.

The linear model would be replaced with the ideal to reduce, reuse, repair, remanufacture, recycle.

Meanwhile, it is still being debated how (and even whether) an efficient circular economy can be brought about. For instance, how big a role should governmental bodies take in enforcing circular principles. Should we rely on green voluntary approaches by progressive businesses who can strengthen their brand reputation, or should there be a top-down approach that creates a level playing field within the circular framework? The policy approach of extended producer responsibility (EPR) has been proposed as a tool for generating circularity. Yet, as it can be implemented in different ways, it can have varying degrees of impact on business conduct and thus have varying effects on the green transition.

What is the Extended Producer Responsibility?

Extended Producer Responsibility (EPR) is a policy approach where producers⁶ are given a responsibility for the treatment or disposal of their products after the use phase. The responsibility can either be financial, where producers are required to pay a fee per product they put on the market, or physical, where the producer manages the post-consumer products themselves. The EPR is based on the principle that ‘the polluter pays’ as the producer is required to compensate or manage the end-of-life phase of their products. It can however also be seen as an economic instrument to encourage improved designs of textiles to reduce the costs of this management.

¹ European Environment Agency (2019) [Textiles in Europe's circular economy](#).

² European Environment Agency (2019) [Textiles in Europe's circular economy](#).

³ EURATEX (2019) The textile and clothing industry in 2019

⁴ Ellen MacArthur Foundation (2017) A New Textiles Economy

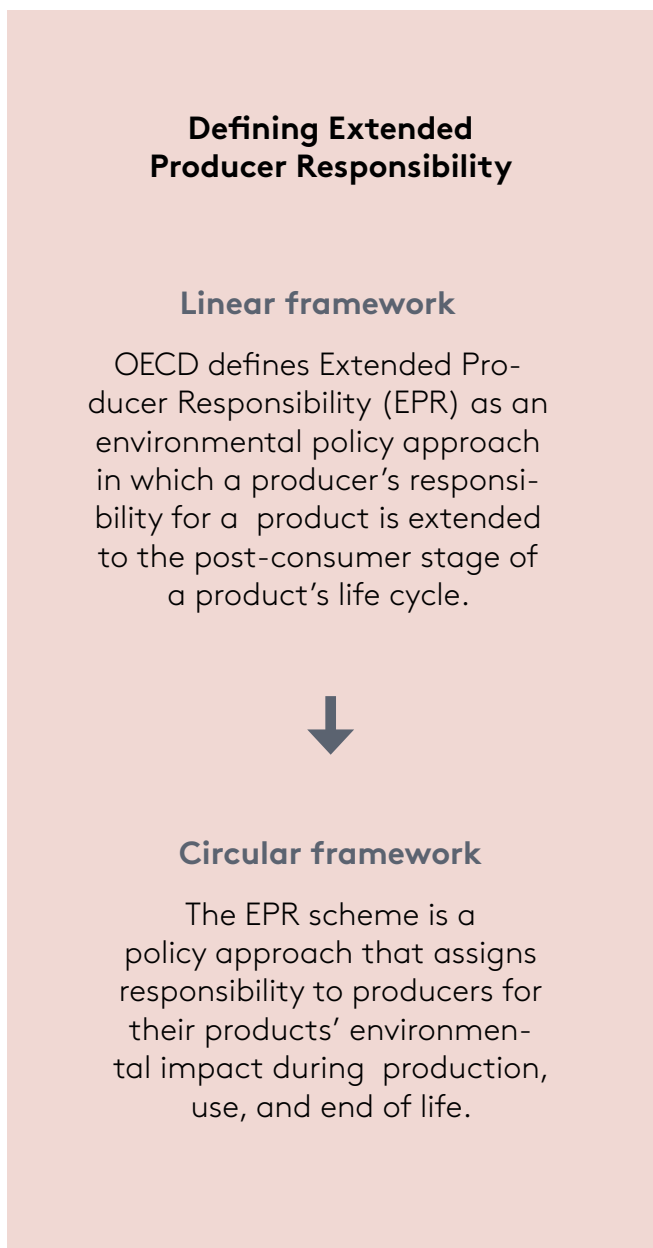
⁵ COM(2020) 98 final

⁶ Producers may be the general term used in this context, yet it is not restricted to actors that produce. Instead it can refer to all actors who place products on the market like importers, brands, distributors, retailers, or similar.



In this context, EPR strategies ought to be designed to place responsibilities for the negative environmental impacts on producers and provide incentives for producers to develop products that take environmental impacts during all its life cycles into consideration⁷. Therefore, EPR frameworks should be understood as policy tools that are able to push the circular agenda.

Figure 1: Definitions of EPR



While EPR was initially developed in the context of waste management, which is also the main emphasis of the OECD definition (see figure 1), the policy approach has potential to reduce the environmental impact during products' entire lifecycle. An effective EPR scheme should be designed to incentivise producers to:

Pre-consumption

Reduce the ecological footprint of new products in the production phase

Use phase

Design products that are more durable, less polluting during use-phase, and develop business models based on keeping garments in circulation.

Post-consumption

Design products that are fit for circularity and engage in activities of collection, sorting, and recycling.

The aim of this publication

This publication has been initiated by Tekstilrevolutionen. We wished to take a step beyond advocacy alone, and to carry out a much-needed comprehensive study of the scheme. Debates about EPR policy have previously remained vague and have not discussed the structure and components that will ultimately affect the policy. Therefore, this publication aims to:

1. Give an overview of EPR: what it is, why it is relevant and how it may affect the textile industry at large.
2. Develop a framework for politicians, outlining the optimal implementation of the policy, in the hopes of easing the political process.

⁷Véronique Monier et al. (2014) *Final Report: Development of Guidance on Extended Producer Responsibility*. European Commission, DG Environment.



While we in this document explore the possibilities and challenges linked to the establishment of EPR, this publication is also a call to action. In Denmark, politicians and governmental bodies have yet to put forward the issue of EPR. The discussions have been latent and may ironically have been slowed down by the fact that the EU is “considering” an EPR⁸. The Danish Environmental Protection Agency (DEPA) is awaiting the EU proposals on the matter, rather than being proactive and seeking to implement EPR regardless of what the EU decides. **Whether or not the EU decides for an EPR on textiles across the EU, we strongly recommend a national scheme.**

Method

The project draws on literature published by DEPA, Ellen MacArthur Foundation and EU bodies. Literature from these institutions has been used as a foundation as they show the current state of the industry, of legislation, of textile flows, and of action plans. Yet, while work from these institutions are commonly used as points of references, we have also drawn on academic literature and NGO reports to examine additional dimensions of the EPR scheme rather than conventional ones.

Further, cross-country cases have been reviewed, both where an EPR scheme on textiles has already been realised (France) and where it is in the process of being developed and implemented (Sweden and the Netherlands).

We have also examined EPR schemes with a long history, such as those for batteries and electronics, as these cases show how waste management has fared. However, when juxtaposing the respective industry case studies, it is important to consider that the value chains of these products are very dissimilar, and comparisons should be made with care.

⁸ Roadmap for the initiative [EU strategy for sustainable textiles](#)



EPR IN THE EU

At the European Union (EU) level, there are a few Directives directly introducing EPR as a policy approach⁹:

- ELV Directive 2000/53/EC (vehicles);
- WEEE Directive 2012/19/EU (Electrical and Electronic Equipment);
- Batteries Directive 2006/66/EC.

EPR is also used to support the implementation of the Packaging Waste Directive (94/62/EC). However, as none of these EPR Directives address textiles, other frameworks are more relevant to the textile industry. The Waste Framework Directive (2008/98) sets the principles regarding the implementation of EPR by Member States, specifying minimum operating requirements for EPR schemes¹⁰. Therefore, the Waste Framework Directive is crucial for all future EPR schemes to come, including an EPR for textiles.

It appears that the EU is generally designing EPR strategies with waste management frameworks in mind, including the EPR strategy for textiles.

Directive = a legislative act that defines goals that all EU Member States must pursue, allowing Member States discretion on how they will design their national legislation to achieve these goals

Waste Framework Directive

The amended version of the Waste Framework Directive (amended by the Directive

EU/2018/851) establishes that **Member States must have selective collection of textile waste by 1 January 2025¹¹**, which could prompt the development of EPR schemes for the sector. Considering this, it is relevant to understand what exactly the Waste Framework Directive requires and what the options are for its implementation in EU countries. The Directive (Article 8.1) states that Member States may take legislative or non-legislative measures establishing EPR in order to “strengthen the re-use and the prevention, recycling and other recovery of waste”.

Measures undertaken by Member States to ensure the achievement of those goals may include the mandatory acceptance of returned products and waste, the subsequent management of the waste and the financial responsibility for such activities by the producers¹².

Moreover, the Directive defines (Article 8.2) that Member States may adopt appropriate measures to encourage the development of products with reduced environmental impact and waste generation. Other relevant provisions regarding EPR implementation by the Member States is that the countries must consider the technical feasibility and economic viability of the design of the policy. Therefore, impacts on the environment, human health and social impacts should be balanced with the economic aspects of such measures¹³. That means that one of the requirements¹⁴ for the design of EPR strategies is the guarantee of equal treatment of producers and products.

The European Apparel and Textile Confederation (EURATEX) highlights that textile products vary hugely, and an EPR strategy for textiles should value the differences in products

⁹ Herman Huisman (2018) Status of EPR in Europe. Rijkswaterstaat, Cape Town.

¹⁰ Further exposed in the section EPR in Denmark.

¹¹ Directive (2008/98), article 11(1).

¹² Directive (2008/98), article 8(1).

¹³ Directive (2008/98), article 8(3).

¹⁴ Directive (2008/98), article 8a(1d).



and business models (e.g. product as service, second-hand sale, Personal Protective Equipment or fast fashion). EURATEX also asserts that an EPR scheme for textiles should be designed to support circularity, contrary to EPR schemes based on the linear economy model as seen in other sectors (e.g. vehicles, electrical and electronic equipment)¹⁵. This is aligned with the recent discussions on the EU Textile strategy and the Circular Economy Action Plan as a main building block of the European Green Deal.

EU Strategy for textiles

In response to the complexity of textiles' value chain, the European Union is making an effort to launch a comprehensive EU Strategy for textiles, aiming at strengthening industrial competitiveness and innovation in the sector while improving the EU market for "sustainable" and circular textiles. The Strategy is built on other EU initiatives, such as the Circular Economy Action Plan, the Sustainable Product Initiative and the New Consumer Agenda.

In a nutshell, the Strategy encompasses:

- development of ecodesign for textiles, ensuring that textile products are suitable for circular models.
- incentivising the uptake of recycled materials
- limiting the use of hazardous chemicals
- enhancing transparency for consumers across the value chain
- better management of production and post-consumer waste
- boosting textile recycling and re-use

So far, the European Commission has presented a 'roadmap' indicating the plans for

the strategy. In this context, EPR is something that is "considered", but not yet an established part of the Strategy. We deem it highly unlikely that the final version of the Strategy that will be published in December 2021 will include an EPR policy. For more insight on the Strategy, see [our position paper](#).

EPR on an EU level versus the national level

It is worth considering the benefits of advancing an EPR on textiles at the EU level instead of only nationally. A harmonised approach at the EU level through a common policy framework could avoid contradictions across Europe, thus avoiding distortions in the European Single Market. General provisions of such a scheme could avoid problems such as free-riding behaviour or leakage (e.g. online sales or migration of industries). It could also leverage existing integrated mechanisms of monitoring, control, surveillance and reporting. Moreover, in the current context of changes proposed under the EU Green Deal, a scheme for EPR in textiles could offer consistency to a coordinated approach to promoting a circular economy in the EU textile sector.

However, the lack of an EU EPR scheme for textiles should not hinder the development of a national scheme by the Member States. Pioneering the design and implementation of EPR nationally could allow more time for the sector to adapt and develop suitable solutions, enhancing competitiveness associated with the achievement of sustainability goals. For example, firms can showcase their environmental progress through corporate social responsibility, which has been linked to achieving tangible economic gains and cost savings, as well as enhancement of reputation and social legitimacy¹⁶. Thus, moving

¹⁵ The European Apparel and Textile Confederation (2020) Extended Producer Responsibility (EPR) in textile products. EURATEX, Sustainable Businesses.

¹⁶ Tetrault Sirsly, C. A., & Lamertz, K. (2008). When does a corporate social responsibility initiative provide a first-mover advantage?. *Business & Society*, 47(3), 343-369.



forward with the transition could lead to first mover advantages for those daring to take the first steps.

Waste hierarchy

When designing a scheme to support circularity, the waste hierarchy is often used as a key concept. This is no exception in the context of EPR schemes for textiles. The EU introduced the hierarchy in the 2008 Waste Framework Directive and has since become a reference point for waste legislation and the circular economy. Basically, it is a framework that shows a prioritised ranking of actions that should be taken in regard to waste management and circular economy in general. Put bluntly, a brand could look at the waste hierarchy and discover that it is more environmentally friendly to engage in second-hand sales rather than recycling of used garments.

Often, different terms are used describing the waste hierarchy - 'prevention' is sometimes replaced with 'reduce'. It does not matter, the framework is the same. For this publication, we use the EU's terminology as seen in figure 2 on next page: Prevention, Reuse, Recycle, Recovery, and Disposal.

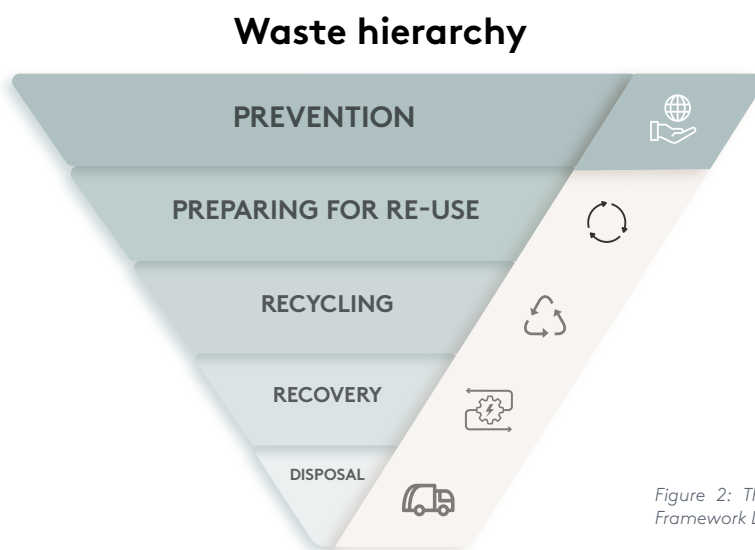


Figure 2: The Waste Hierarchy as defined by the EU in the Waste Framework Directive



Prevention

Actions taken before or while manufacturing new products. Basically, by reducing the amount of products and reducing waste generation during the production process, for example by designing zero-waste patterns. Reducing harmful chemicals and hinder new products from becoming waste by increasing durability.

Reuse

Before products turn to waste, they should be reused as much as possible. This can be done by checking, cleaning, repairing, refurbishing, reselling and other means of extending the garment's life.

Recycling

Recycling is the reprocessing of products. Particularly in the apparel industry this stage has its own hierarchy. It can be characterised like this: Remanufacture products by using usable parts, recycle textiles into new fibres, and downcycle textile waste by mechanically shredding it and using it in other industries, for instance, for upholstery.

Recovery

If the textiles cannot be recycled, then they can at least be used as fuel for generating electricity. While this process also leads to greenhouse gas emissions, it replaces other means of generating electricity, consequently reducing emissions from energy production.

Disposal

Finally, if there is nothing to do with the worn-out garment and it cannot even be used for energy production, then it ends up being incinerated without energy recovery or land-filled.



LESSONS FROM EPR SCHEMES ON TEXTILES

Sparked by the EU regulation requiring Member States to establish a separate waste collection scheme for textiles by the year 2025, EPR schemes on textiles have received increased attention over the last years. While France alone introduced a legal framework for EPR policy for textiles as early as 2007, several countries, including the Netherlands and Sweden, are currently in the first phases of development of a national EPR policy on textiles. To understand the implementation and effects of an EPR scheme, we will first present France's case, followed by a case study of the initiating phases of Sweden and the Netherlands, respectively.

Implemented: France

In France, the EPR policy for textiles came into effect on January 1, 2007. Since then, all actors introducing new textiles on the French market are held responsible for collection and recycling of end-of-use clothing, linen, and shoes. These actors include all legal entities presenting new textiles on the market, among others manufacturers, importers, and distributors. To uphold their responsibility, they have two options: either contribute financially to the French producer responsibility organization (PRO), Re_fashion, who will manage waste prevention and undertake collection and recycling activities on behalf of the companies, or establish their own individual take-back system approved by the French public authorities¹⁷.

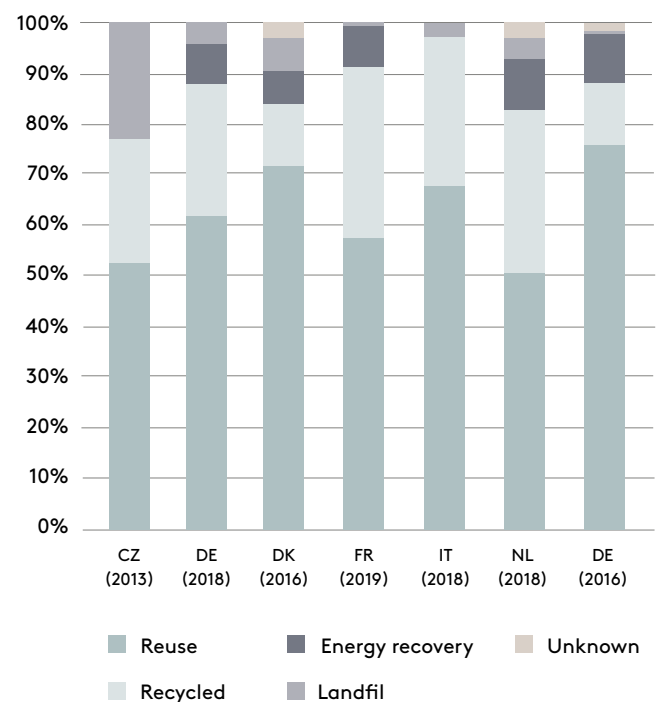
Outcomes

Due to the implementation of EPR in France, post-consumer textile collection rates have increased almost fourfold since 2006. A growth rate far higher than seen in other countries.

It must however be noted, that the collection rate has risen from an initially low level. In 2006, only 65.000 tonnes of textile items put on the market were collected, while this increased to 240.000 tonnes in 2019, equal to a 38% collection rate. Compared to collection rates of 43% in Denmark and 45% in the Netherlands, France's collection rate in itself is however not impressive¹⁸.

The rapid increase of collection rates in France have been attributed to a combination of target setting and ensuring incentives to all actors to achieve these targets. Especially translating national targets to municipal targets have been successful, for example, targets for density of collection points. If a municipality meets the criteria of collection density, the PRO will financially support the municipality's communication to citizens¹⁹.

Figure 3: Treatment for separately collected post-consumer textiles in countries within some EU countries.



Where collected textiles go, in percentages. However, the table does not show how much is collected. Data is from national reports from different years. Source: Köhler, A., et. al. (2021).

¹⁷ Bukhari, M. A., et. al. (2018.) Developing a national programme for textiles and clothing recovery. *Waste Management* 36(4), 321-331

¹⁸ Köhler, A., et. al. (2021). *Circular economy perspectives in the EU Textile sector*. Joint Research Centre, European Union

¹⁹ Köhler, A., et. al. (2021). *Circular economy perspectives in the EU Textile sector*. Joint Research Centre, European Union



Of the collected textiles in 2019, 57,8% were reused and 33,5% were recycled, 8,2 % were used for energy recovery, while 0,5% were disposed of without energy recovery, as seen in figure 3. However, as it can be seen in the figure, France's numbers are not sticking out compared to other European countries. One of the key elements for increasing collection rates was the goal of one collection point per 1,500 inhabitants. In 2019, 90% of the French population had access to a collection point with an average of 1 collection point per 1,440 inhabitants²⁰.

The PRO system

While large companies such as H&M established their own take-back system, 95% of the market actors in France are registered as members of Re_fashion²¹. The PRO is a not-for-profit private company, which consists of 29 associates representing the textile value

chain in France. The manufacturer, importer, or distributor registers as a member and pays a yearly tariff calculated by eco-modulated fees times the number of textiles put on the market.

France has set a 50% collection target of the annual sale of clothing, linen, and footwear and a recovery rate of 95% of the collected material. To reach these goals, the PRO focuses not only on improved collection rates by increasing the availability and accessibility of containers, but by financially supporting campaigns to raise consumer awareness. Additionally, the PRO seeks to improve recycling rates by identifying textiles recovery standards, support research and technological innovation, as well as financially support the collection and sorting sector and improving transparency of the financial and material flows in the industry²².

Fact box on Re_fashion webpage

Re_fashion is the only accredited producer responsibility organisation (PRO) for textiles in France. It has operated since 2007 under mandates negotiated with the government. The current mandate is valid for 3 years after which it must be renegotiated and includes regular target updates²³. While Re_fashion undertakes the role of ensuring waste prevention and end-of-life management of textiles on the behalf of its members, the organisation additionally facilitates the move towards a circular economy by providing a wide range of services to various stakeholders; brands, sorting and collection operators, local and public authorities, project developers and the general public. This service is centered on Re_fashion's webpage.

Among others, the webpage presents:

- A map of all textile collection points in France allowing the population to quickly identify the nearest drop-off point for their used textiles.
- A eco-design platform providing members with information on production methods to reduce environmental impacts, resource selection, eco-design knowledge, life cycle analysis and best practice cases for inspiration.
- The latest publications, studies, activity reports, and webinars
- Yearly reports on the results and progress of Re_fashion and its members.

<https://refashion.fr/pro/en>

²⁰ ECO_TLC (2020). Annual Report 2019

²¹ Watson, D., et. al. (2020). Towards 2025: Separate collection and treatment of textiles in six EU countries. Miljøstyrelsen

²² Bukhari et. al. (2018). Developing a national programme for textiles and clothing recovery. Waste Management 36(4), 321-331

²³ Köhler, A., et. al. (2021). Circular economy perspectives in the EU Textile sector. Joint Research Centre, European Union, p. 39



Ecomodulation

What is ecomodulation?

EPR fees should in principle cover the actual end-of-life costs of a product. This includes cost of collection, transport and treatment, awareness raising and administrative issues. Moreover, environmental externalities should be taken into account when determining EPR fees, while the waste hierarchy must be followed. One way to determine EPR fees is using eco-modulation. Charging ecomodulated fees means differentiating fees based on certain criterias, such as durability and reparability, resulting in more environmentally “sustainable” products. See figure 4 for the correlation between ecomodula-

tion of EPR fees and the waste hierarchy²⁴.

It is important that future ecomodulated fees are adjusted to reward waste prevention measures such as reusability, durability, and reparability of products. Furthermore, ecomodulated fees should be regulated so as to follow the waste hierarchy to improve eco-design of products; if a product is designed with waste prevention and reuse in mind and thus complies with the higher levels of the waste hierarchy, fees should be reduced in comparison to fees for a product complying with lower levels of the waste hierarchy .

<https://refashion.fr/pro/en>

At the same time, the PRO encourages their members to make their products more sustainable and eco-designed. As an incentive, the PRO has been applying ecomodulated fees since 2012. The annual tariff of the members of the PRO can be reduced based on three ecomodulation levels²⁵;

1. Ecomodulation 1: supports more durable and resistant products, offering a 50% tariff reduction on individual items if the textile or footwear meets criteria and passes quality tests of, for example, durability
2. Ecomodulation 2 supports the integration of recycled material in new textiles by re-

ducing the yearly tariff by 50% if the product contains a minimum of 15% recycled material in its composition

3. Ecomodulation 3 supports the increased integration of recycled material in new textiles, by reducing the yearly tariff by 25% if the product has a minimum content of 30% recycled fibers.

The PRO's report from 2020 indicates results: In the space of one year, from 2018 to 2019, there was a rise in declared ecomodulated items from 17 million to 57 million items²⁶.

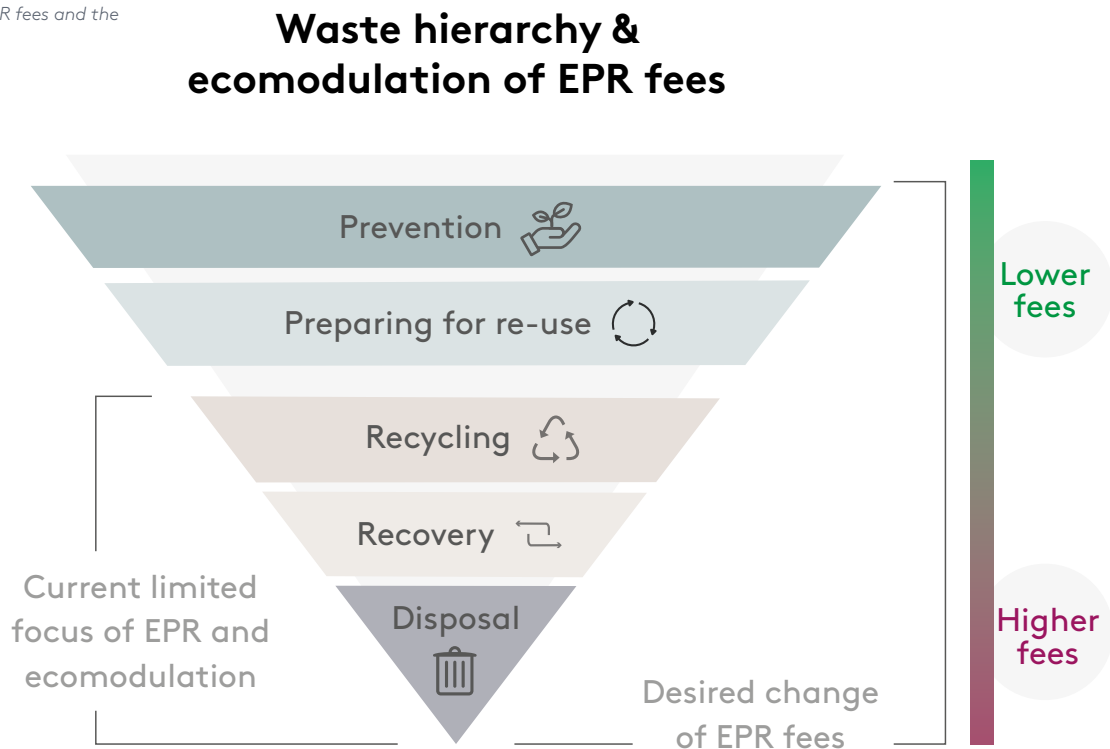
²⁴ Sachdeva et al. (2021). *Extended Producer Responsibility and Ecomodulation of Fees*. Ecologic Institute

²⁵ Re-Fashion (2021). *Eco-modulated scale*. <https://refashion.fr/pro/en/eco-modulated-scale>

²⁶ ECO_TLC (2020). *Annual Report 2019*



Figure 4: The correlation between ecomodulation of EPR fees and the waste hierarchy



Obstacles

While 57,8% of the collected textiles in 2019 were evaluated as fit for reuse, only 5% were re-sold in France. The remaining 52,8% were exported to other countries, mainly outside Europe. However, these re-use streams are foreseen to face challenges in the coming years. The main markets for reused textiles, some Asian and African countries, are considering banning import of used textiles, following the Philippines who banned the import of used textiles in 2016. It will therefore be necessary to develop Europe's reuse market and increase national demand for second-hand clothing²⁷.

Similarly, Re-Fashion identifies it as a pressing challenge to increase recycling rates and improve the quality of the output material from recycling. To sort and recycle used textiles is expensive and inefficient, especially in the current market. Common fibre blends are particularly difficult to sort and recycle. Therefore, most textiles are down-cycled into lesser value articles, like automobile interiors, instead of being given a new life through upcycling - consequently eschewing vast amounts of economic value. To mitigate this, Re_fashion suggests that the economic support currently given to the sorting companies instead are used to invest in recycling projects and technologies²⁸.

²⁷ Bukhari et. al. (2018). Developing a national programme for textiles and clothing recovery. *Waste Management* 36(4), 321-331

²⁸ Watson, D., et. al. (2020). Towards 2025: Separate collection and treatment of textiles in six EU countries. Danish Environmental Protection Agency



To be implemented: Sweden

Planned EPR policy approach

In 2019, Sweden's current government committed to introduce EPR on textiles. The new EPR legislation is to be introduced from January 1st 2022, with licensed textile collection starting January 1st 2024²⁹. Currently, 19% of textiles put on the Swedish market are collected through separate textile collections run mainly by charities and to a lesser extend municipalities³⁰.

The EPR strategy was presented in 2020: it proposes to place on Swedish textile producers both the financial and operational responsibility for collecting and treating textile waste. In Sweden a producer is defined as a national or international actor, who places a textile on the Swedish market or directly sells textiles to Swedish consumers. Textile producers on the Swedish market are thus obligated to finance and ensure collection and management of textiles after end-use. A producer must hire a licensed operator to manage the producer's textiles after end-use and register at the Swedish Environmental Protection Agency (SEPA), who will be responsible for supervising the body that operates the licensed collection system. Thereby, the producer is responsible for financing the textile collection - however, the operator is responsible for living up to the requirements of waste collection and management set by the government.

The policy proposes to leave it up to producers to decide how to organise and manage the scheme, with only the requirements and objectives being defined by legislators. It is believed that this approach creates the best conditions for collection, sorting, and recycling, as the producers' own interest, keeping costs to a minimum, is expected to result in greater efficiency.

Simultaneously, it is proposed that existing textile collection systems run by non-profits (charity organisations) would not be negatively affected by the new EPR system and should be able to continue to collect textiles for reuse - this is based on the understanding that people generally prefer to donate their used textiles to charity.

The recommendations for the proposed EPR system are based on the understanding, that it cannot be expected that citizens are able to assess which textiles are suitable for reuse and recycling, respectively, whereby a simple scheme with one collection stream is considered the best possibility to ensure that as much textile is removed from residual waste as possible.

The goal is to collect 90% of end-of-use textiles by 2028 for reuse or material recovery. To ensure that textiles are correctly discarded at household level, SEPA will estimate how much textile is thrown away in residual waste by analysing waste samples. The target is to decrease textile material in residual waste fractions by 70% in 2028, 80% by 2032, 90% by 2036³¹.

Supplementary measures

While the implementation of EPR on textiles in Sweden is one measure to foster the circular economy, other supplementary measures are also emphasized which can support the EPR system³². The following supplementary measures are suggested:

- Lower VAT on all secondhand
- A quota obligation for secondhand, remake and recycled fibre
- Instruments to encourage remake
- Incentives for repairs

²⁹ Losman, B., et. al. (2020). *Producentansvar för textil – en del av den cirkulära ekonomin*. Stockholm: Statens Offentliga Utredningar. SOU 2020:72

³⁰ Watson, D., et. al. (2020). *Towards 2025: Separate collection and treatment of textiles in six EU countries*. Danish Environmental Protection Agency

³¹ Losman, B., et. al. (2020). *Producentansvar för textil – en del av den cirkulära ekonomin*. Stockholm: Statens Offentliga Utredningar. SOU 2020:72

³² Losman, B., et. al. (2020). *Producentansvar för textil – en del av den cirkulära ekonomin*. Stockholm: Statens Offentliga Utredningar. SOU 2020:72



- Demands for a deposit system for certain textiles³³.

To be implemented: the Netherlands

Similar plans to introduce ERP on textiles have emerged in the Netherlands, with a commitment to introduce EPR starting 2023, as part of the Policy Programme for Circular Textiles 2020-2025 for a more circular textile economy. The new EPR policy is expected to include all producers marketing textiles on the Dutch market. Early discussions with trade organisations in the Netherlands have shown that they prefer a voluntary EPR and are prepared to develop their own EPR systems. Hereby, producers become responsible for collecting end-of-use textiles themselves, for instance in shops. To accelerate the implementation of EPR and to ensure a well-functioning EPR system, the Dutch government, however, is considering establishing a fully statutory scheme³⁴.

Low quantity and quality of collected textiles

As part of the implementation of EPR in the Netherlands, collection schemes for textiles are debated. Currently, textile collection is undertaken by both charities, commercial collectors and to a lesser extent municipalities³⁵. To enforce an EPR that promotes higher reuse and recycling rates, collection schemes ensuring higher quantity and quality of textile “waste” are essential. In the Netherlands, 45% of textiles are already collected through separate waste streams (of which 55% is reused and 33% recycled). However, studies in the Netherlands show that separate textile collections from households are no longer cost-effective due to the decreas-

ing reuse market and low recycling capacity in the Netherlands and Europe. Furthermore, the collected textiles are of low quality - and therefore less likely to be reused or recycled - due to moisture and waste in current textile collection containers. Like many other countries, the Netherlands is therefore facing the challenge of ensuring the proper quantity and quality of separate textile collection streams.

In the coming years, the Dutch government set out to develop a detailed plan for the development and implementation of an EPR system and collection streams, in close collaboration with market actors³⁶.

Green Denim Deal

While the development of textile collection schemes is central when initiating an EPR scheme, supplementary initiatives are likewise deemed necessary. For example, to support the development of reuse and recycling markets that can lead to increased demand for used textiles, and thereby the ability to reach the reuse and recycling goals of the EPR scheme.

One of the additional initiatives of the Dutch government is the introduction of the Denim Deal (2020-2023). This is set to accelerate the green transition of the denim textile industry specifically, which is relatively large in the Netherlands.

³³ Losman, B., et. al. (2020). *Producentansvar för textil – en del av den cirkulära ekonomin*. Stockholm: Statens Offentliga Utredningar. SOU 2020:72

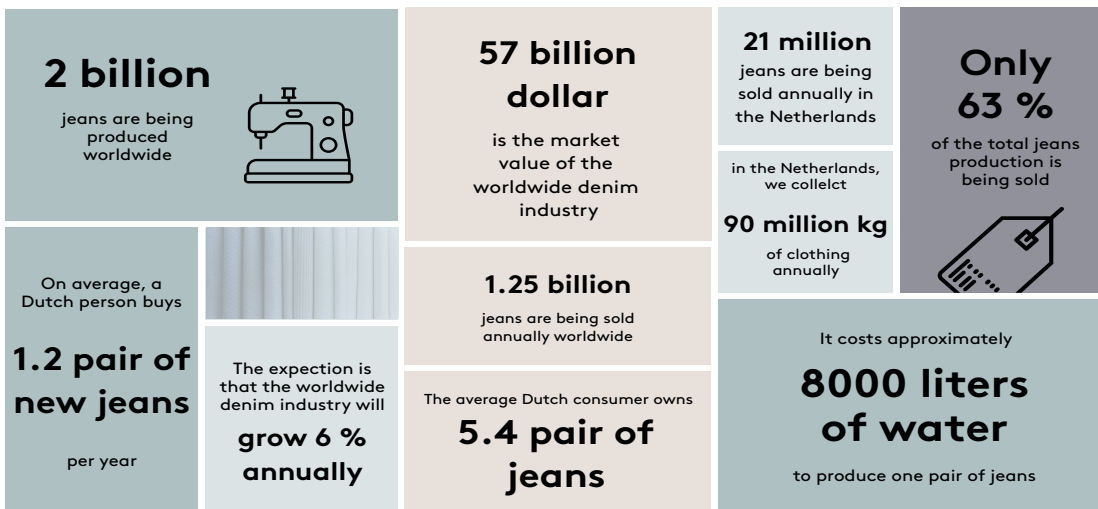
³⁴ Ministry of Infrastructure and Water management (2020). *Policy Programme for Circular textile 2020-2025*

³⁵ Watson, D., et. al. (2020). *Towards 2025: Separate collection and treatment of textiles in six EU countries*. Danish Environmental Protection Agency

³⁶ Ministry of Infrastructure and Water management (2020). *Policy Programme for Circular textile 2020-2025*



Figure 5: Facts about the global denim



Own representation, based on data from: Ministry of Infrastructure and Water management & Ministry of Economic Affairs and Climate Policy (2020)

The Denim Deal seeks to both increase demand for post-consumer recycled denim and enable partnerships between public and private actors to process textile waste into high-quality recycled fabrics³⁷. By the end of 2023, brand owners and retailers have committed to work towards achieving a joint ambition of at least 5% PCR (post-consumer recycled material) cotton fibres in the production of all denim garments. Some actors also set individual targets as high as 20% PCR cotton fibres in their denim textiles. This will automatically increase the demand for recycled textile material, incentivizing the EPR scheme. Lessons learned and successful approaches will be published as roadmaps, helping the the Dutch textile industry to become a frontrunner in the use of recycled/PCR cotton in their production of new garments³⁸.

While this initiative does not target the highest level of the waste hierarchy, it aims at supporting creativity, entrepreneurship, and innovation. Companies, individuals, and organisations are invited to partner with public authorities to achieve green growth. If initiatives encounter obstacles which the organisers believe can be tackled by the cen-

tral government, the government will remove these to accelerate the transition to a closed loop for denim textiles. The hope is that the experiences gained through the Denim Deal can help to develop similar initiatives in other parts of the textile industry³⁹.

Key takeaways

To sum up, France implemented EPR on textiles to spark a separate collection of textiles. When France initiated the PRO system, collection rates were low and their EPR policy was mainly established to finance collection schemes of textiles. First during the last couple of years have France been progressive in developing their EPR policy towards circularity.

Sweden and the Netherlands have a completely different starting point for their implementation of EPR, as collection rates in these countries are already high (similar to Denmark). Instead, they are now introducing EPR not only to comply with the EU requirements of separate textile collection, but to accelerate a circular transition and incentiv-

³⁷ Ministry of Infrastructure and Water management & Ministry of Economic Affairs and Climate Policy (2020). C-233 Green Deal on Circular Demin "Demin Deal"

³⁸ Ministry of Infrastructure and Water management (2020). Policy Programme for Circular textile 2020-2025

³⁹ Ministry of Infrastructure and Water management & Ministry of Economic Affairs and Climate Policy (2020). C-233 Green Deal on Circular Demin "Demin Deal"



ize environmental considerations in the textile industry. Thus, while the French scheme has been running for many years, they too are in an early stage of the transition towards a circular EPR scheme. What can be learned from the French case though is their ability to rapidly increase collection rates, primarily by incentivising all actors, for example through eco-modulated fees and targets at municipal level, while focusing on household near collection points and extensive communication to - and engagement of - the citizens.

Designing the best textile collection streams is a central part of the discussion in both Sweden and the Netherlands. Textile collection schemes in both Sweden and the Netherlands are run by charities, commercial collectors, and municipalities, where France has been successful in establishing a single collection stream operated by the PRO. With the new EPR policy, Sweden is expecting to establish a single collection stream for textiles, following the example of France. They especially emphasize how this will ease the burden for households. In the Netherlands, it is likewise considered not only how a larger quantity of textiles can be collected, but also how the quality of the collected textiles is ensured. Especially establishing a collection scheme that is financially feasible and ensuring quality of the collected material are key obstacles requiring attention.

Lastly, funding to research and technology development have been essential in France's transition towards an EPR scheme supporting circularity. While Sweden and the Netherlands are still in the initiating phases of developing the EPR policy, this has also been emphasized. Among others, they suggest additional supplementary measures that can incentivize changes towards a circular textile sector and, for example, increase the demand for recycled material and new business models through the Denim Deal.



EPR IN DENMARK

As with the above case studies, Denmark is beginning to transform the waste sector to a model of circularity. In the new 'Climate Plan for a green waste sector and circular economy' from 2020, the vision is to have a climate-neutral waste sector by 2030. To achieve this, the amount of waste produced must be reduced, while more reuse, remake, repair, and recycling activities are required.

Textile collection in 2023

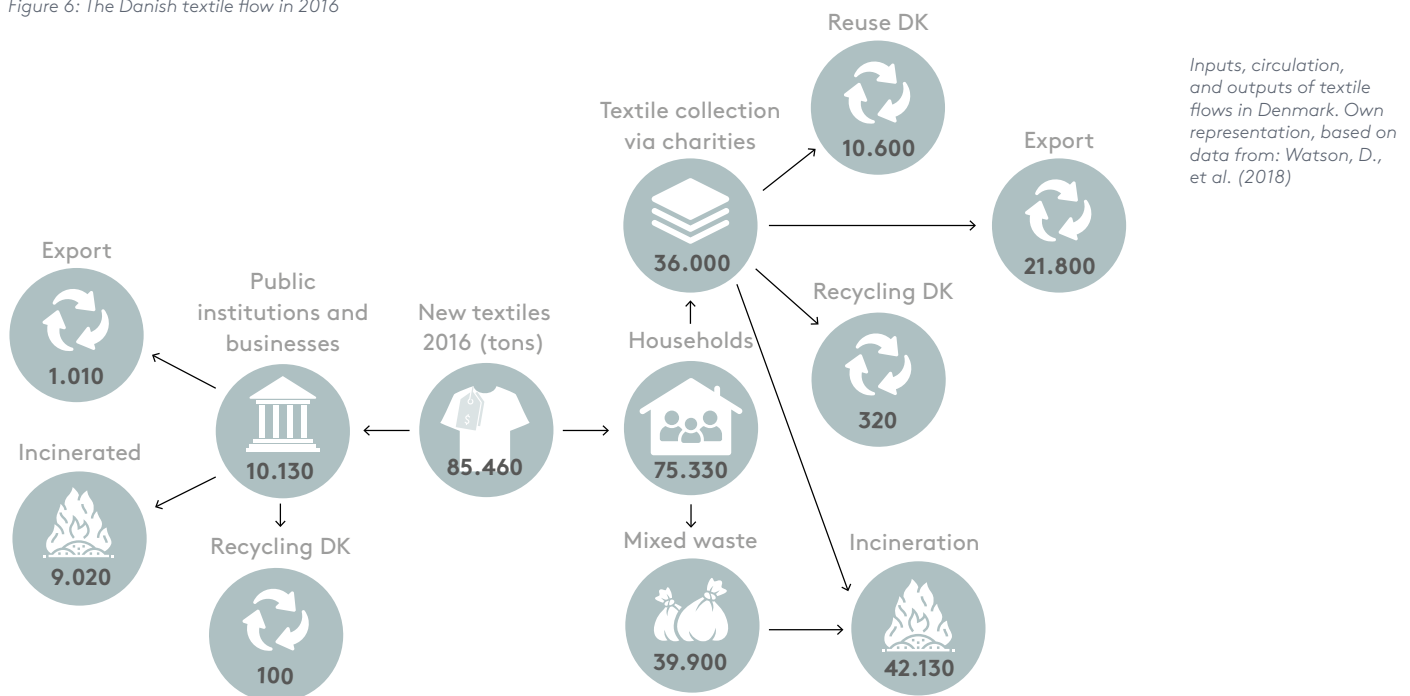
Part of this effort is to expand reuse and recycling activities by increasing the separation of waste at household level. "Household near" separate collection of textile waste is to be introduced at the earliest in July 2023 and no later than 2025, the latter date is mandat-

ed by EU requirements. The specific requirements for the collection scheme and sorting criterias are yet to be clarified⁴⁰. Responsibility for the collection scheme is, however, placed with the local Danish municipalities.

Current textile collection and treatment in Denmark

The current textile collection and treatment in Denmark showcases the need for action. A quick rundown of the numbers shows that Denmark imported 85.460 tons of new textiles in 2016. Households accounted for 75.300 tons and companies and public institutions accounted for 5.000 tons each. This corresponds to 15 kilos of textiles annually per citizen. Of the textiles purchased by households, 83% were clothing⁴¹.

Figure 6: The Danish textile flow in 2016



⁴⁰ Ministry of Environment (2021). Action Plan for Circular Economy

⁴¹ Watson, D., et al. (2018), Mapping of textile flows in Denmark. Danish Environmental Protection Agency



Of this, approximately 36.000 tons of the used textiles were collected by charity organisations and private collectors for reuse and recycling. While the collection rate in Denmark is fairly high compared to other European countries, figure 6 shows that 54% (39.900 tons) of all textiles are discarded in mixed households waste streams where the majority is incinerated. The value lost by incineration of these textiles is estimated to be at least 90-110 million DKK⁴². Securing this value will not only require a separate textile waste collection, but upscaling of remake, reuse and recycling activities and altering consumer behaviour.

Considerations when introducing EPR in Denmark

To ensure the proper management and upscaling of circular activities in connection with the increase in bulk of textile collection, Denmark could follow the example of other European countries, and consider implementation of EPR before or in correlation with the requirements of separate textile collection.

Who is responsible?

One of the key elements in EPR is placing responsibility on the producers. Sweden has, inspired by the French system, chosen to leave both the financial and operational responsibility to the producers, while the Netherlands have still to decide. In Denmark, this topic is approached differently. At the moment it is recommended that textile waste (non-reusable) is collected by municipalities as part of the municipal household waste collection scheme, while textiles suitable for reuse must be delivered to charity or commercial collectors. This model does however, as discussed in the Sweden case, pose the risk of reusable textiles ending up in the municipal textile

waste collection, and will require clear and coordinated communication to citizens to ensure that discarded textiles are sorted and deposited in the correct place⁴³.

Implementing EPR before or after separate textile collection?

A study initiated by DEPA specifically points out that introducing EPR before or after the implementation of a municipal textile collection scheme will likely affect a future EPR scheme on textiles in Denmark. The study emphasizes that if EPR is introduced after the implementation of a municipal waste collection scheme for textiles, is it considered most appropriate to assign producers only the financial responsibility for collection and treatment of textiles. If EPR were to be introduced before the implementation of municipal textile waste collection, this would make it possible to allocate both the financial and operational responsibility to the producers, as implemented in France and proposed in Sweden. The study suggests that this will allow for other collection solutions, including a combined model where operators collect both textile waste and reusable textiles in a single waste stream, which would simplify sorting of textiles for the citizens while placing the financial burden on the producers rather than on municipalities and citizens⁴⁴.

We therefore recommend that an EPR scheme should be introduced prior to or as part of the required textile collection scheme, as this would both ease the financial burden on municipalities and citizens, whilst optimising the collection itself and thereby minimising the environmental impact. It would also allow the involvement of producers in the development and maintenance of the system. This is supported by several market actors, who highlight EPR as a crucial measure; not only to en-

⁴² Watson, D., et al. (2018), *Mapping of textile flows in Denmark*. Danish Environmental Protection Agency

⁴³ Johnson, H. Ø., et al. (2021). *Sorting and collection of textile waste from households - Analysis and proposed standards*. Danish Environmental Protection Agency

⁴⁴ Johnson, H. Ø., et al. (2021). *Sorting and collection of textile waste from households - Analysis and proposed standards*. Danish Environmental Protection Agency



sure that the expenses related to collection, sorting, and treatment of textiles do not fall on the households through municipal waste management fees, but to create an incentive for the producers to, for example, improve design with a view to remake, repair, reuse, and recycling of textiles⁴⁵. Introducing EPR as part of the required separate textile collection thus has several advantages.

Suggestions by Tekstilrevolutionen

The implementation of EPR could be a key strategy for the advancement of the textile sector in Denmark, in conformity with the Polluter Pays Principle (PPP) as one of the key features of environmental policies and actions in Europe, and especially if aligned with the optimization of the design of textiles, allowing better reuse and recycling of products⁴⁶. Moreover, the already well-established reuse schemes (e.g. charities) can run in parallel with an EPR scheme, as these operate on the market for used textiles and not textile waste, which the EPR scheme would cover⁴⁷.

EU minimum requirements

EU waste legislation shapes a general framework for the implementation of EPR, which gives the Member States the responsibility for the implementation and operationalization of producers' responsibility in national legislations. Thus, the minimum requirements laid down in the Waste Framework Directive (art. 8), are the first thing to consider when establishing an EPR scheme in Denmark, making sure to comply with EU rules. These include⁴⁸:

- clearly defining the roles and responsibilities of the actors involved (for example

producers, organizations implementing the schemes, and local authorities);

- setting relevant waste quantitative and qualitative management targets;
- implement a reporting system to gather relevant data;
- ensuring equal treatment for all producers, avoiding a disproportionate regulatory burden on some producers.

It is necessary to ensure that the fees paid by producers meet the costs of separate collection of waste, its subsequent transport and treatment, the costs of providing adequate information and the cost of data gathering and reporting⁵⁰. When necessary, and justified to ensure proper waste management, Member States may also share the financial responsibility, however not exceeding 20%⁵¹ of costs⁵². Accordingly, producers should bear at least 80% of the costs. Moreover, when implementing EPR schemes, the European countries shall create incentives or regulations that ensure adequate disposal and management of waste by anybody who produces and/or dispose of waste.

The Danish Producer Responsibility System

In Denmark EPR schemes are currently administered by DPA (Danish Producer Responsibility System). DPA is a self-owned, non-profit organisation established by several industry organisations. The DPA develops and operates the statutory, national producer responsibility register and administers the current simple and competition-neutral producer responsibility scheme for electronics, batteries, and cars for the relevant market players. The current tasks undertaken by the DPA mainly focus on administering waste management and tariffs, as well as data collection to mon-

⁴⁵ Johnson, H. Ø., et. al. (2021). *Sorting and collection of textile waste from households - Analysis and proposed standards*. Danish Environmental Protection Agency

⁴⁶ European Court of Auditors (2021). *The Polluter Pays Principle: inconsistent application across EU environmental policies and actions*. Special Report n. 12

⁴⁷ Johnson, H. Ø., et. al. (2021). *Sorting and collection of textile waste from households - Analysis and proposed standards*. Danish Environmental Protection Agency

⁴⁸ Herman Huisman (2018) *Status of EPR in Europe*. Rijkswaterstaat, Cape Town.

⁴⁹ Directive (2008/98), article 8a.

⁵⁰ Directive (2008/98), article 8a(4)a.

⁵¹ If the EPR scheme has been established before 4 July 2018, the producers bear at least 50% of the necessary costs, if not already surpassing that amount.

⁵² Directive (2008/98), article 8a(4)c(i).



itor performance and environmental objectives⁵³.

While an EPR on textiles could be expected to fall under the administration of the DPA as well, a different organisation - which can demand of producers a more active role in creating positive change in the textile sector - should be considered. An EPR scheme on textiles should be based on a circular model, instead of existing, linear model EPRs. Instead of handling the textile waste as solely waste, it should for circular purposes be managed first and foremost according to the waste hierarchy - ultimately viewing textile "waste" as a resource.

Collection and treatment activities

Normally, municipalities will collect the waste from households before handing it over to DPA's operators. Hereafter, the companies manage the collected waste, often through collective schemes, though a few companies choose to collect waste individually. As municipalities are expected to collect the textile waste from households, an EPR scheme on textiles is most likely to be introduced through a similar system. Municipalities would collect textile waste from households and hand it over to an operator, who would manage the waste on behalf of the producers. The textile producers would thereby be given the financial burden of the collection and management scheme, however limited operational responsibility.

Targets and transparency

To ensure that operations undertaken by the PRO/DPA aim for circularity, targets must be formulated, and the progress of the PRO tracked. Targets should be both far-sighted and emphasize circular business models and

must be updated regularly to follow the pace of the development of the industry.

EPR performance targets must be developed to ensure the recirculation of resources, and in accordance with the waste hierarchy. These targets should include setting goals to increase the market share of businesses based on other business models than the take-make-dispose model; this could include businesses such as repair, rental, or resale.

Furthermore, reaching targets is not enough in itself - it is crucial that goals are achieved in the spirit of their making. France, for instance, is facing an urgent challenge as their main export markets of used textiles are decreasing, making it difficult to maintain current reuse and recycling levels. This could be mitigated by setting targets for the PROs management of textiles, for example, by setting targets for a certain percentage of reuse and recycling to take place within the national market or Europe.

When setting targets, requirements for data collection and transparency are equally important. While the current EPR schemes in Denmark already emphasize data collection and transparency, this must be strengthened further. The annual report from Re_fashion, the French PRO, is a good example of thorough recording of the performance of the textile sector and laying out new targets for the year to come. Being transparent about the success of industry initiatives in general, and the EPR scheme in particular, is essential to spark consumers' engagement in textile separation and change consumer behavior.

⁵³ DPA (2021). [Om DPA-System](#)



Ecomodulated fees

In order for swift changes to be made towards circularity, ecomodulated fees must be put in place. Ultimately, the most environmentally friendly business practices should be met with the lowest fees. Calculating the environmental impact of a business is most often done through life cycle assessments - yet a systematic review of environmental impacts of the various business models and textile production methods has yet to be carried out. Consequently, ecomodulated fees should be established with the waste hierarchy in mind, to ensure that measures such as recycling, which only mitigates a small amount of the overall impact, is not prioritized over measures that prolong the product life, such as increased durability and access to repair services.

To ensure this, it is important to not only focus on minimizing waste management costs, but to take into account the social and environmental costs of the product. In other words, EPR and ecomodulated fees can be designed to include both upstream and downstream measures. These could be upstream measures emphasizing initiatives to foster circular product design and production standards that generate less waste in both the production and after-use phase; and downstream measures for a more efficient waste management system which collects, sorts, and recycles waste. This would establish significantly differentiated ecomodulated tariffs, serving as an actual incentive to prioritize efforts towards waste prevention and reusable products, rather than products fit for recycling⁵⁴.

Lastly, we recommend that Denmark follow Sweden's and the Netherlands' example and implement a set of supplementary measures to support the overall circular transition of the textile industry.

SUPPLEMENTARY MEASURES

EPR is one of the tools that could enable the transformation of the textile industry. However, EPR should not stand alone to address the environmental issues - instead, parallel measures should be adopted to reduce certain problems or to boost solutions. This includes the adoption of economic policy instruments aimed at influencing market dynamics - for instance, taxes on virgin material, tax reductions on repair services, or early investment in promising technologies.

The success of an EPR system could be increased by the adoption of supplementary measures⁵⁵, such as:

- Customer policy regulations e.g. to remove free-of-charge return from webshops
- Ban the destruction of unsold goods, as done in France as part of the Anti-Waste law 2020⁵⁶. Currently, the EU is considering such legislation in the Textile Strategy
- Lower VAT on secondhand and repair services
- A quota obligation for secondhand, remake and recycled fibre
- Incentives for producing garments that can be repaired
- Demands for a deposit system for certain textiles
- Financial assistance for circular business innovation
- Promote education on circular design and circular supply chain management
- Minimum warranty periods for clothing
- Government funding pool for start-up in-

⁵⁴ Sachdeva, A., et. al. (2021). *Extended Producer Responsibility and Ecomodulation of Fees*. Ecologic Institute

⁵⁵ Losman, B., et. al. (2020). *Producentansvar för textil - en del av den cirkulära ekonomin*. Stockholm: Statens Offentliga Utredningar. SOU 2020:72; Watson, D., et. al. (2015). *EPR systems and new business models*. Nordon

⁵⁶ Ellen MacArthur Foundation (2021). *France's Anti-waste and Circular Economy law: Eliminating waste and promoting social inclusion*.



vestments in new business models related to textiles

- Resource tax on new textiles to potentially increase demand for used fibres
- CO2 tax

Needless to say, successful transition towards a circular economy model and the achievement of sustainable standards in the textile industry depends on the engagement of multiple stakeholders. Hence, the adoption of various techniques to accomplish the transition may fulfil the different needs of different actors, enabling a fair transition for all.

ISSUES TO CONSIDER

While we advocate for EPR as an essential step towards a circular textile industry, the success of this measure depends on proper implementation. Being aware of the road bumps waiting ahead are crucial to ensure this. In the following, we have highlighted the biggest challenges to the implementation of a successful EPR scheme in Denmark.

Designing EPR policy for circularity

In the past, EPR schemes have been implemented with success in Denmark. This includes EPR schemes on electrical products, cars, batteries and accumulators, and single-use beverage packaging. Arguably, this should provide us with experience in and insight into developing and implementing an EPR scheme which is not only successful but widely supported by the industry. The big difference is, however, that the EPR schemes implemented in industries today, are designed for linear economy models emphasizing waste man-

agement⁵⁷, not circular business models, as we would see as most fitting for the textile industry. Furthermore, it is noteworthy that even existing EPR schemes, such as the one for batteries, may be revised by upcoming EU legislation to align it with the objectives of circularity.

EPR should not just be a polluters-pay free pass, but place responsibility at the producers as a step towards redefining the textile industry, in order to achieve a more circular textile industry and target the actual issues of the industry. How the EPR scheme is framed, and objectives are set is essential in this matter.

One of the steps towards ensuring this, is for the EPR scheme to go beyond the coverage of waste management costs and take into account the cost of industrial transition towards a circularity. This includes earmarking funds in the PRO's annual budget for research and innovation across the value chain, design for recyclability and longevity, facilitation of data collection and raising consumer awareness, amongst other initiatives⁵⁸. An example of this approach is Re_fashion in France.

Additionally, the European Recycling Industries' Confederation emphasizes EPR schemes seeking to bridge the gap between the design and end-of-life treatment stages, as well as support the system of reuse through eco-modulated fees rewarding textiles' durability reusability, and recyclability⁵⁹.

Supporting circular business models

The EPR scheme is by and large aimed at reducing the ecological footprint of products. While reduced environmental impact from production and post-consumption recirculation can

⁵⁷ EURATEX (2020). *Extended Producer Responsibility (EPR) in textile products. EURATEX position paper*

⁵⁸ EURATEX (2020). *Extended Producer Responsibility (EPR) in textile products. EURATEX position paper*

⁵⁹ EuRIC (2020). *EuRIC position on EPR schemes for textiles*



decrease the stress on the ecology, businesses can develop new business models that do not center on the selling of new products. In the apparel industry such circular business models include, but not limited to, rental, leasing, clothing libraries, re-commerce, and repair services. These product-as-service business models prolong the lifetimes of each garment and seek to decouple revenue streams from production of new products. The businesses can thus grow financially without increasing production.

In France, ecomodulated fees can be reduced when products are eco-designed, as described earlier. But if fees are reduced too much in relation to design and production, businesses are not incentivised to put fewer products on the market. Therefore, the fee should always be high enough for product-as-service models to be economically viable.

At the same time, the EPR policy approach should ensure that PROs allocate money for infrastructure that supports the development of circular business models. For instance, by supporting innovative technological solutions like using NFC tags that can be used for rental models. Here, microchipped tags are inserted into the garment, so that the consumer as well as the brand can scan the tag with their phone to follow the multiple “lives” the garment has had through a ‘digital twin’ of the garment⁶⁰. Using the EPR funds in this way is in line with the first target of the waste hierarchy which is waste prevention or to reduce the amount of waste⁶¹.

Upscaling reuse, repair, remake, and recycling activities

Experience from other areas shows that establishing an EPR scheme with the desired

incentive structure can be both challenging and complex. While an EPR scheme plays a significant role in higher collection rates and the development of sorting, reuse, and recycling capacity, it cannot be expected to solve all challenges connected to it⁶². One of the biggest challenges faced not only in Denmark, but showcased in both France, the Netherlands, and Sweden is upscaling and prioritizing activities following the circular waste hierarchy; reduce, reuse, repair, remake, and recycle.

Reuse

Reuse markets in the Nordic countries, and EU in general, are experiencing increased market pressure. While the amount of used textiles collected in the EU is increasing, the share of top-quality clothing is decreasing⁶³. Simultaneously, competition in the traditional reuse market is intensified by second-hand clothing from China, while several countries, for example the Philippines, are starting to ban imports of used textiles, challenging current export flows of used textiles⁶⁴. Consequently, textile sorters are facing lower profitability and difficulty in marketing used textiles. The upcoming EU requirements to collect textile waste is only expected to add to the current market trends. The number of used textiles collected separately is expected to increase by 80% across EU, flooding the used textile market with an extra two million tonnes a year⁶⁵.

On a positive note, a study conducted by ThredUp indicates a change in consumer behavior projecting reuse markets to increase in the following years. However, this increase is not expected to keep pace with the increase in textiles collected⁶⁶.

⁶⁰ As an example of rental with NFC tags, see [Ganni Repeat](#)

⁶¹ European Parliament. 2018. “Directive (Eu) 2018/851 of the European Parliament and of the Council.” Official Journal of the European Union, no. 1907: 109–40

⁶² Johnson, H. Ø., et. al. (2021). Sorting and collection of textile waste from households - Analysis and proposed standards. Danish Environmental Protection Agency

⁶³ Watson, D., et. al. (2020). Towards 2025: Separate collection and treatment of textiles in six EU countries. Danish Environmental Protection Agency

⁶⁴ Ljungkvist, H., et. al. (2018). Developments in global markets for used textiles and implications for reuse and recycling. Mistra Future Fashion Report

⁶⁵ Watson, D., et. al. (2020). Towards 2025: Separate collection and treatment of textiles in six EU countries. Danish Environmental Protection Agency

⁶⁶ ThredUp (2021). [2021 Resale Report](#)



Repair and remake

The repair and remake market are still limited both in Denmark and in the EU. There are, however, several examples of best practices of repair services, which policies should be formulated to support⁶⁷. Upscaling repair and remake activities must be prioritized in the implementation of EPR and strengthened through supplementary measures, for example, by incentivizing companies to offer a repair service on their products. The implementation of EPR should challenge the current shopping culture, where the willingness to buy second hand, repair or remake clothes might be lower, as you can buy fast fashion cheaply. Instead, EPR should support a transition towards a textile market, where buying new clothes becomes more expensive than reuse, repair, and remake of textiles.

Recycle

Lastly, the current recycling market is limited by the lack of technological development in textile recycling. Textiles often consist of many different and complex materials, which are difficult to separate without reducing the quality of the recycled material⁶⁸. While there are already some technologies for recycling cellulosic and polyester fibres, they are still in their infancy and need to be scaled up. Meanwhile, technologies for recycling fibres such as nylon and elastane are still absent, as well as the capability to recycle most material blends. New technologies are, however, expected to be developed within the next 5-10 years, as well as the ability to upscale these to industrial scale. To support this, a future EPR scheme should both target recyclability of textiles in the design phase, as well as financially support the development of technologies and innovative solutions through the PRO. In France, for example, the current chal-

lenges are reduced by supporting emerging recycling technologies financially through an R&D fund financed by the textile producers, as well as by ecomodulated fees awarding recyclability⁶⁹.

Generally, developing the reuse, repair, remake, and recycling market in Denmark (and EU) is essential not the least to lift the burden of managing increasing amounts of textile “waste”, but to support the transition towards a circular textile industry.

⁶⁷ Macintosh, E. (2020). *Reuse, repair, remake is the future of fashion. Meta from the EEB*

⁶⁸ Watson, D., et. al. (2020). *Towards 2025: Separate collection and treatment of textiles in six EU countries. Danish Environmental Protection Agency*

⁶⁹ Watson, D., et. al. (2020). *Towards 2025: Separate collection and treatment of textiles in six EU countries. Danish Environmental Protection Agency*



RECOMMENDATIONS

Brands

Regulations that affect business operations are coming. If not EPR, then similar initiatives. With an EPR scheme on textiles, the responsibility for the environmental impact throughout the value chain will fall on you. There will be a greater focus on creating circular business models and focusing on textile durability is key. Take advantage of the gap in the market and start (or accelerate) your transition towards separating environmental impact from profits. This will give your business a head start.

Legislators

Local, national, and supranational authorities have set targets to reduce greenhouse gas emissions and stay within planetary boundaries. The EU Green Deal aims at transforming the EU into a modern economy with “no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use”⁷⁰. In the efforts towards a greener economy, the Danish Climate Act identifies Denmark as “a pioneer in the international climate effort, which can inspire and influence the rest of the world. In addition, Denmark has both a historical and a moral responsibility to take the lead”⁷¹. Yet actions that steer in that direction tend to fall short.

Take the lead and implement a comprehensive EPR scheme on textiles. You will not only act as a climate frontrunner, but gain first mover advantages to foster green growth, national competitiveness, and novel jobs in the emerging circular paradigm.

Designers

Implementation of an EPR scheme with eco-modulated fees will require you to rethink your product design. Consider the waste hierarchy by making sure that you have the following factors in mind: how can I design a piece of clothing that generates limited textile waste, can be repaired, reused and/or recycled? Keep in mind that the order of these measures is important and that it is better to just focus on measures like durability that are high on the list. The designer’s role and responsibility has never been bigger.

Consumers

After 20 years of price stagnation, prices on new textile products may finally rise, and will hopefully lead to an apparel consumption where prices to a larger degree reflect ecological degradation. Accordingly, the supply of garments might change and require new consumption patterns. Try out new purchasing possibilities like rental or leasing of products or follow our recommendation in our [impact guide](#).

⁷⁰ COM(2019) 640 final

⁷¹ [Law no 965 of 26/06/2020](#)



ABOUT TÆNKETANKEN TEKSTILREVOLUTIONEN

Tekstilrevolutionen is an independent think tank working towards a textile industry in which production and consumption has a positive impact on the world and its inhabitants. We believe inspiration, information and co-creation are the tools that will bring us there. We want to develop an environment where scientists, scholars, brands, consumers, politicians, and authorities are collaborating to find, cultivate and realize the best solutions.

We collect data, come up with ideas and pinpoint barriers and possibilities connected to the green transition that the industry is bound to undergo. To brands, we assist in reaching their green potentials; to politicians, we provide industry knowledge and push for progressive legislation; to customers, we share knowledge and develop tools which can guide towards informed decisions and cognizant consumer behaviour.

We want a nourishing textile industry where stock prices can grow, revenue streams flow, and business life can take centre stage, yet it cannot be at the expense of flourishing ecosystems where trees endure, rivers are pure, and all people can earn a living wage.

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TEKSTILREVOLUTIONEN

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