

---

## Implementation of Selective Collection of Textile Waste in Poland - SWOT Analysis

---

Submitted 21/10/23, 1st revision 10/11/23, 2nd revision 24/11/23, accepted 10/12/23

Karolina Gwarda<sup>1</sup>

**Abstract:**

**Purpose:** The aim of the article is to identify both the opportunities and challenges facing Poland in the context of transposition of EU law into national regulations in the context of mandatory textile segregation using SWOT analysis.

**Design/Methodology/Approach:** The article uses the SWOT analysis, which accounts for both strengths, weaknesses, opportunities, and threats proposal legislation solution. The source of the data used in the analysis was academic articles, observations, interviews, newspaper articles, surveys and databases maintained by various institutions and companies.

**Findings:** The strengths, weaknesses, opportunities and threats of implementing the proposed solution were identified, which may be helpful in developing a strategy to update the textile waste management system in Poland to the regulations of the European Union.

**Practical Implications:** Regardless of industry and company size, selecting using the AHP method to select suppliers allows for making decisions based on several criteria whose correlation is preference-adjusted.

**Originality/Value:** The value of this article is its practical use of the collected attributes. The subject of the article is very current and fits into the trend of preparing Poland's strategy for the transposition of EU law in the field of textile waste.

**Keywords:** Textile waste, transposition of EU law.

**JEL codes:** M21, L99, L83, C38.

**Paper type:** Research article.

---

<sup>1</sup>M.Sc., Gdynia Maritime University, Faculty of Management & Quality Science, Gdynia, Poland, [k.gwarda@wzpj.umg.edu.pl](mailto:k.gwarda@wzpj.umg.edu.pl)

## **1. Introduction**

In contemporary times, the textile and apparel industry is becoming increasingly problematic for the natural environment. The fashion sector represents one of the world's largest and most influential industries. However, the rapid production and disposal of clothing have serious environmental and social consequences.

It has been demonstrated that traditional methods of clothing production and waste management are unsustainable and have a significant adverse impact on the environment, including high energy consumption, water usage, and greenhouse gas emissions.

These issues have not escaped the European Union (EU), which has been trying to promote a more sustainable textile and clothing industry through various initiatives for many years. These initiatives include ecological labeling programs, the promotion of recycling, reduction of chemical compound emissions, product safety supervision, and the establishment of adequate standards for workers in the clothing sector.

One such solution involves changes in regulations aimed at improving the way household textile waste is sorted and collected for recycling. Starting on January 1, 2025, member states will be required to establish a separate system for collecting textiles.

Therefore, the aim of the article is to identify both the opportunities and challenges facing Poland in the context of transposition of EU law into national regulations in the context of mandatory textile segregation using SWOT analysis.

## **2. Textile Waste**

Textile waste is one of the key challenges for a circular economy and is also an important environmental issue. There are diverse sources of this type of waste generation, covering the textile, textile and clothing industries, as well as the retail and service sectors (Cuc and Vidovic, 2011). Nevertheless, consumers are largely responsible for the generation of a significant amount of textile waste, which is discarded for reasons such as deterioration or lack of interest in the product (Ütebay *et al.*, 2020).

In the context of the increasing problem of textile waste, an important issue is to identify the types of this waste and to analyse the scale of its generation in the context of the growing production and consumption of textiles. Koszewska distinguished three main categories of textile waste based on their source of generation (Koszewska, 2018):

- 
- post-industrial- generated in the production process before reaching the consumer, they result from the non-compliance of materials with certain quality standards during production,
  - pre-consumer - includes those that do not meet quality standards already at the production stage or at the retailer's distribution centres, these include unsold goods in retail shops,
  - post-consumer - generated by consumers after the lifetime of the textile products.

In recent decades, there has been a significant increase in the amount of textile waste generated, both in the pre-consumer and post-consumer phases. As the production and consumption of textiles develops on a global scale, this problem is also taking on particular importance in the countries of the EU.

It is estimated that around 12.6 million tonnes of textile waste are produced annually in EU countries, of which clothing and footwear account for 5.2 million tonnes. Calculated per EU resident, an average of 12 kg of waste is generated per year. Households are the main source of textile waste, accounting for around 8-9% of total waste. Currently, only 22% of consumer textile waste is separately collected for reuse or recycling. The remainder is often incinerated or landfilled (EC, 2023).

According to the Ellen MacArthur Foundation (EMF, 2017), global clothing production doubled in just fifteen years, from 2000 to 2015. Against this backdrop, an analysis of European Commission (EC, 2022) data from 2022 reveals that the average European purchases 26 kg of new clothing per year, indicating a sustained trend of increasing textile consumption on the continent.

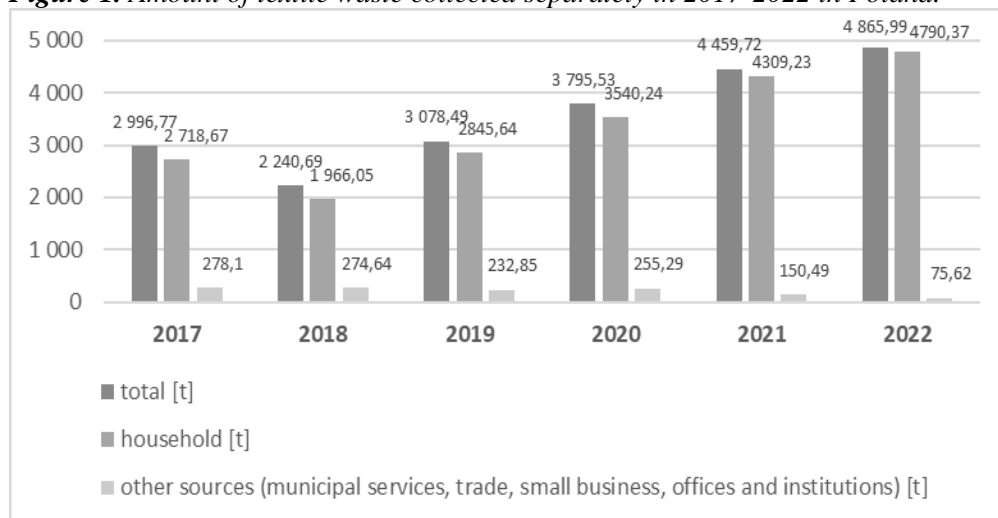
The issue of clothing consumption and production also impacts outside the European Union (EU). Data from the European Environment Agency (EEA, 2023) show that exports of used textiles from outside the EU have tripled over the past two decades. In 2000, just over 550,000 tonnes were exported, while in 2019 this figure has almost tripled to almost 1.7 million tonnes.

It is anticipated that this figure could continue to rise, especially given the planned introduction of a separate category for collected textile waste in all EU countries by 2025. Europe accounted for around 33% of global textile exports in 2019, highlighting its significant role in the global market. Nevertheless, among the major exporters in the region, only a few countries are mentioned, such as Germany, the Netherlands, and Poland (EEA, 2023).

It is estimated that more than 2 million tonnes of textile waste is generated annually in Poland, and only half of it is recyclable (Kilkowska et. al. 2019). Moreover, according to information from the Local Data Bank of the Central Statistical Office, in 2019, textiles accounted for 3 thousand tonnes of waste in the stream of selectively collected municipal waste (with 3.98 million municipal waste collected

selectively at that time). In 2022, on the other hand, 4.8 thousand tonnes of textiles were collected separately - representing only 2.8 per cent of all separately collected waste (SP, 2023). Changes over the years in the separate collection of textiles by households and other sources of generation are shown in Figure 1.

**Figure 1.** Amount of textile waste collected separately in 2017-2022 in Poland.



*Source:* Own elaboration base on data from the Polish Statistical Office.

### 3. Developments in EU Legislation in the Context of Tackling Textile Waste

The EU is focusing on revising its waste law in an effort to more effectively achieve its goals of a circular economy and climate protection. This area includes general rules governing various specific categories of waste, including textiles. One of the main thrusts of the restructuring is to improve the segregation and transfer of household waste for recycling. The development of rules for textile waste is a significant part of the new EU approach. As part of this, it is planned to (EU, 2008):

- to facilitate textile recycling processes,
- increase consumer awareness of sustainable practices in the clothing industry,
- reduce the amount of textile waste sent to landfill.

The new legislation is part of four directives: the Waste Framework Directive (WFD), the Landfill Directive, the Packaging and Packaging Waste Directive and the Single Use Plastic Directive.

One important transformation is the introduction of mandatory segregation and separate collection of textiles. Waste separation is a key element to ensure high

quality recycling and preparation for re-use processes. This practice is also important in preventing hazardous substances from seeping into other waste streams, which is an important element in protecting the public and the environment from their potentially harmful effects.

According to the definition in Article 3 WFD, separate collection is defined as a process whereby a defined waste stream comprises only wastes of a homogeneous type and nature in order to facilitate specific treatment. Under the provision of Article 11 of the WFD, Member States are obliged to introduce mandatory separate collection of textiles as of 1 January 2025. (EU, 2008).

In the near future, the textile sector will undergo significant environmental changes as a result of the adoption, at the end of March 2023, of the final form of the European Strategy for Sustainable and Circular Textiles by the European Commission.

This strategic document follows directly from the 2020 Roadmap for a Closed Economy, which identified the textile sector as a key product category in need of immediate intervention due to its high resource consumption and significant environmental impact (EC, 2022).

In implementing the provisions of this plan, the Commission has based its strategy on the conclusions of the European Environment Agency (EEA), which has repeatedly highlighted that the textile sector in Europe ranks fourth in terms of negative environmental impact, just after the food production, construction and transport sectors.

The strategy sets out the direction of the textile industry and precisely lists the key actions to be taken. A central demand of the document is to achieve sustainability and recyclability of textiles placed on the EU market by 2030. In this context, it prioritises the production of fibres from recycled materials, characterised by the absence of hazardous substances and environmentally friendly production processes, while respecting social norms.

Consumers are expected to use quality textile products longer, available at affordable prices, and the trend of fast fashion will lose popularity. Economically viable reuse and repair services will become widely available. In a competitive, resilient and innovative textile sector, producers will take responsibility for their products along the value chain, including after they become waste.

A closed-loop textile ecosystem will be developed with sufficient capacity for innovative fibre recycling, and incineration and landfill practices for textile products will be minimised.

Within the key actions enshrined in the strategy, the following stand out (Wyszkowski *et al.*, 2022):

- the introduction of mandatory eco-design requirements,
- abandoning the destruction of unsold or returned textile products,
- combating microplastic contamination,
- implementing information requirements and a digital product passport,
- adherence to a minimum amount of recycled fibres,
- extended producer responsibility and the promotion of re-use and recycling of textile waste,
- reversing the fast fashion trend,
- ensuring fair competition and compliance in a well-functioning internal market,
- supporting research, innovation and investment towards slow fashion,
- addressing textile waste disposal issues.

#### **4. Application**

##### **4.1 Research Methodology**

The study used the following research methods: a literature review, a data mining method and unstructured interviews with experts and employees of companies related to the textile market, as well as the SWOT method, which is usually used for strategic planning in business, but many researchers have also successfully used it for other studies, such as those related to waste management (Yuan, 2013, Lupu, *et al.*, 2016).

Data sources included academic articles, observations, interviews, newspaper articles, surveys and databases maintained by various institutions and companies.

##### **4.2 Proposed Legislative Changes Regarding Textile Waste - SWOT Analysis**

The basis of the analysis is to identify the strengths, weaknesses, opportunities and threats of the mandatory introduction of separate collection of textile waste from 2025. The first stage of the SWOT analysis consists of developing a catalogue of the strengths and weaknesses of the changes introduced.

In turn, the second stage identifies the opportunities and threats posed by the amended legislation at the micro level, i.e. for each individual municipality, and at the macro level, i.e. for the entire national system. It will be up to the municipality to organise this system. The SWOT analysis allows us to understand what factors may affect the effectiveness of the introduction of compulsory textile waste segregation in Poland. It is worth taking these factors into account when planning strategies and activities related to this project.

### 4.3 Results and Findings

This part of the article analyses the process of transposition of the EU law related to the obligatory segregation of textile waste into the Polish legal and regulatory system. Table 1 presents the identified strengths, weaknesses, opportunities and challenges that Poland may encounter during the implementation of this legislation.

*Table 1. SWOT analysis for the introduction of selective collection of textile waste in Poland.*

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<p><b>Ecological awareness of society:</b> The ecological awareness of society is growing in Poland, which may facilitate acceptance and compliance with new regulations regarding the segregation of textile waste.</p> <p><b>Segregation infrastructure:</b> The current infrastructure related to the separation of general waste can be partially used to introduce a new system for textile waste.</p> <p><b>Recycling potential:</b> Poland has the potential to develop a textile recycling industry, which could bring economic and environmental benefits.</p>	<p><b>Lack of public education:</b> The public may not be sufficiently prepared for compulsory segregation of textile waste. Education campaigns are needed.</p> <p><b>Logistical infrastructure:</b> Implementing a textile segregation system may require changes to the logistical infrastructure, which can be costly and time-consuming.</p> <p><b>Financial challenges:</b> Complicated textile recycling processes can generate additional costs that can be a burden for consumers and businesses.</p> <p><b>Lack of a Unified Waste Policy:</b> Existing discrepancies in Polish waste legislation may pose a problem in the harmonious implementation of EU directives.</p>
<b>CHANCES</b>	<b>THREATS</b>
<p><b>Development of the recycling industry:</b> The introduction of compulsory segregation can create new opportunities for textile recyclers, which will contribute to the growth of the industry.</p> <p><b>Cooperation with clothing companies:</b> The introduction of mandatory segregation can push clothing companies towards more sustainable practices, which can lead to long-term environmental benefits.</p> <p><b>EU support:</b> Poland can benefit from financial and technical support from the European Union to implement sustainable waste management practices.</p>	<p><b>Public opposition:</b> New regulations may face opposition from the public, especially if they are not properly explained and implemented.</p> <p><b>Illegal waste:</b> The introduction of compulsory segregation may induce some people to dispose of textile waste illegally, making it more difficult to achieve environmental goals.</p> <p><b>Monitoring and Enforcement:</b> Poland will face the challenge of effective monitoring and enforcement of the mandatory segregation of textile waste.</p> <p><b>Clothing industry and retail:</b> Companies associated with the clothing industry may find it difficult to comply with the new regulations, which may lead to resistance and economic problems.</p>

*Source: Own elaboration.*

The implementation of compulsory segregation of textile waste in Polish legislation represents both a challenge and an opportunity for the country. Strengths, such as the public's environmental awareness and a developed waste infrastructure, can support the effective transposition of EU law.

However, weaknesses, such as the lack of a uniform waste policy and the need to educate the public, require decisive action. It is also worth taking advantage of opportunities such as innovative recycling technologies and financial support from the EU to make Poland a leader in sustainable textile waste management.

## **5. Conclusions**

Textile waste is becoming an increasingly serious ecological problem around the world. Poland, as a member of the European Union, must adapt its waste management practices to the standards and guidelines of the European community. Therefore, SWOT analysis is an essential tool to understand what consequences may arise from introducing mandatory segregation of textile waste.

It indicates that the introduction of mandatory segregation of textile waste in Poland has both positive and negative aspects. The opportunities for development of the recycling market and the potential of society's ecological awareness are valuable. However, the need to build infrastructure, educate society and overcome possible resistance requires careful planning and cooperation of various sectors of society.

The introduction of mandatory segregation of textile waste will require coordinated action by the government, business, non-governmental organizations and society. It will also be necessary to constantly monitor the effects and adapt the strategy to the changing situation to ensure the effectiveness of the textile waste management system in Poland.

## **References:**

- Cuc, S., Vidovic, M. 2011. Environmental sustainability through clothing recycling. *Operations And Supply Chain Management*. 4(2), 108-115. DOI: 10.31387/oscm0100064.
- EC. 2022. EU Strategy for Sustainable and Circular Textiles. COM(2022) 141 final.
- EC. 2023. Circular economy for textiles: taking responsibility to reduce, reuse and recycle textile waste and boosting markets for used textiles.
- EEA. 2023. EU exports of used textiles in Europe's circular economy.
- Ellen MacArthur Foundation. 2017. A New Textiles Economy: Redesigning fashion's future. <https://emf.thirdlight.com/link/2axvc7eob8zx-za4ule/@/preview/1?>
- EU. 2008. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008).
- Kilkowska, A., Nowak, A., Różalska, M. 2019. Report „Worn out clothes”. Wrocław. <http://pk.uni.wroc.pl/wp-content/uploads/2019/09/zuz%CC%87yte-ubrania.-raport.pdf>.



- Koszevska, M. 2018. Circular Economy — Challenges for the Textile and Clothing Industry. *Autex Research Journal*, 18(4), 340. DOI: 10.1515/aut-2018-0023.
- Lupu, A.G., Dumencu A., Atanasiu M.V., Panaite, C.E., Dumitraşcu Gh., Popescu, A. 2016. SWOT analysis of the renewable energy sources in Romania - case study: solar Energy. *IOP Conf. Ser.: Mater. Sci. Eng.*, 14. DOI: 10.1088/1757-899X/147/1/012138.
- Snyder, H. 2019. Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, p. 334. DOI: 10.1016/j.jbusres.2019.07.039.
- Statistic Poland. 2023. <https://stat.gov.pl/>.
- Ütebay, B., Çelik, P., Çay, A. 2020. Textile Wastes: Status and Perspectives. Waste in Textile and Leather Sectors. DOI: 10.5772/intechopen.90014.
- Wyszkowski, K., Piwowarek, Z., Nowakowska, M., Chrabota, A. 2022. Sustainable Fashion Market. Guide to the EU Strategy for Circular and Sustainable Textiles. UN Global Compact Network Poland.
- Youan, H. 2013. A SWOT analysis of successful construction waste management. *Journal of Cleaner Production*, 39, 1-8. DOI: 10.1016/j.jclepro.2012.08.016.