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## TYPES OF TEXTILE WASTE IN THE CLOTHING INDUSTRY

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*Textile waste obtained from the activity of garment enterprises, but also as a result of clothing consumption, contributes significantly to environmental pollution. The circular economy strategy promoted today, which includes the production of raw materials, weaving, cutting, sewing, delivery, purchase, wearing and reuse, encompasses a complete cycle with the possibility of zero effect in the production of textile waste. The elimination of textile waste is one of the current problems and needs to be studied individually, being influenced by several factors.*

**Key words:** clothes, material waste, productivity, waste, textiles.

### INTRODUCTION

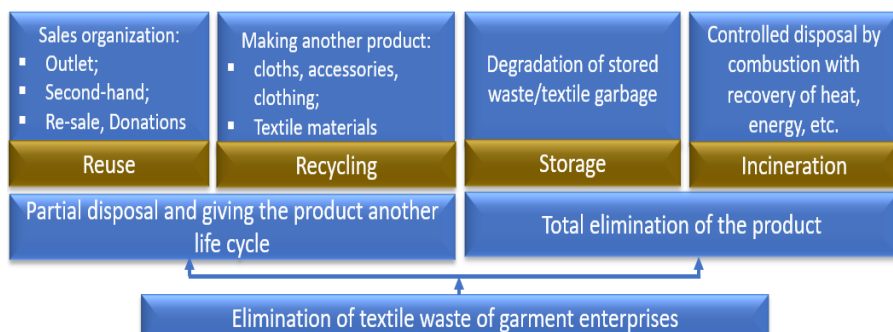
The problem of textile waste is not a new one, but today it faces new challenges imposed by: the increase in the financial and cultural level of society, the globalization of economic relations, scientific progress, etc. Textile waste in the garment industry can be grouped into several basic types depending on the stage in which they were produced, namely: industrial waste, pre-consumer post-industrial waste and post-consumer waste. Pre-consumer post-industrial textile waste is obtained from unsold clothes for various reasons such as: overproduction, defective product, moral aging of the product, etc. Post-consumer textile waste is obtained as a result of the use of clothing by the consumer or the physical and moral aging of clothing products. In the 20th century, post-consumer waste with physical aging was used by our grandmothers to weave mats for the house, obtaining all kinds of necessary products, which today would be called handicrafts. Also, in the 20th century, the fashion industry practiced the renewal or remaking of the clothing product from a product with moral wear, thus sometimes partially, sometimes completely reducing waste.

### PURPOSE

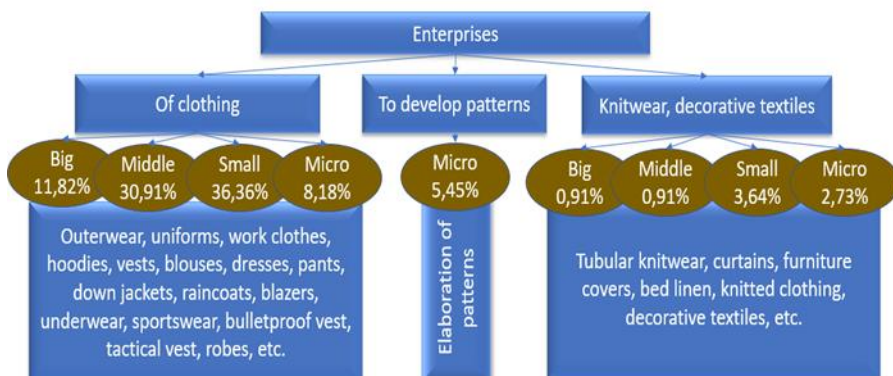
The study involves identifying the types of textile waste within garment enterprises in the Republic of Moldova. The classification of waste types and the analysis of garment enterprises in the republic contributed to the preparation of a survey consisting of 10 questions with answer options and open questions. The survey was conducted online in the application [www.surveymonkey.com](https://www.surveymonkey.com).

### RESULTS AND DISCUSSION

The disposal of textile waste (fig. 1.) produced by the garment industry is carried out through several methods: reuse, recycling, incineration and storage [1].



**Fig. 1.** Methods of disposing of textile waste at garment enterprises.



**Fig. 2.** Classification by types, capacity and assortment of textile enterprises in the Republic of Moldova.

Figure 2 presents the classification of enterprises by type, assortment of manufactured products, capacity and the share of these enterprises in relation to the total number of enterprises [2].

Currently, textile waste collected in the country is recovered following contracts with recovery operators [3]. Textile waste appears as a result of the activity of clothing enterprises, but also as a result of the consumption of clothing products. Today, the consumer, having a fairly diverse and busy activity program, has contributed to the reduction of the moral life of clothing, which is physically quite resistant. The lack of a system for the collection and reuse of clothing in the Republic of Moldova, both from enterprises and from consumers, led to the conduct of the survey study. The survey was attended by over 30 workers of sewing enterprises of various qualifications such as: seamstresses, production managers,



tailors, administrators, designers, founders-administrators, programmer-designer, etc. The range of products made by the interviewees is quite wide, such as: sportswear, uniforms, blouses, dresses, outerwear for women, men, complex covers, shorts, cardigans, vests, wedding dresses, etc.

The results of the survey state that textile waste in textile enterprises is obtained primarily at the stage of tailoring of clothing products - 66.7%, then the development of the standard model - 25%, at the stages of development of the external appearance - 8.3% and the sewing department presents waste below 0%. At the same time, only 22.2% of respondents stated that the waste from the cutting department is thrown into the landfill and cumulatively 80% stated that this waste is used for donations to agricultural enterprises, accessories are made, etc. Table 1 present some results provided by the survey.

**Table 1**

Results of the textile waste recycling survey

The question:		The question:	
8. What are the main difficulties encountered in the textile waste recycling process?		7. What is done with the waste from the cutting department?	
Answer	%	Answer	%
Lack of an efficient collection system;	32,1%	Used to make other products, accessories, etc.	38,9%
Lack of information or education in the field;	28,6%	Sent for recycling;	27,8%
Lack of necessary infrastructure;	17,9%	Thrown in landfill;	22,2%
Legislative norms adapted to the activity of enterprises;	10,7%	Donated to agricultural enterprises;	11,1%
High costs associated with recycling;	10,7%		
The question:		The question:	
5. What types of textile waste are produced within the company's activities?		6. What is done with unsold clothing products within the enterprise?	
Answer	%	Answer	%
Fabric waste (material scraps);	55%	Reduce the selling price;	44,4%
Unfinished products (samples, defective items);	30%	Distribute for free to socially vulnerable groups;	27,8%
Unfinished products (older collections);	10%	Send/collect for recycling;	11,1%
Unusable clothing waste;	5%	Make another product;	11,1%
		Throw in the landfill;	5,6%



## CONCLUSIONS

The textile industry is a priority both in terms of the importance of the finished product that covers basic human needs, cultural needs, daily needs, and strategic ground for economic development. The repeated use and recycling of the product must be correct and adequate, offering the possibility of economic growth and a quality clothing product adapted to the needs of the contemporary consumer. In conclusions following the study and analysis carried out, we can mention:

- ✓ Garment companies in the republic are aware of the textile waste generated by the cutting section, experimental, in which case the donation of material scraps to agricultural enterprises, educational institutions is practiced, very frequently accessories, slippers, etc. are made. Some companies, at a reduced price, sell scraps of textile materials saved as a result of an efficient and economical framing.
- ✓ The lack of an efficient system, collection centers and infrastructure as well as information in the field in the republic contributes to the fact that the cutting section waste and unsold products are thrown into the landfill.

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3. Ministerul mediului își propune să consolideze eforturile în gestionarea durabilă a deșeurilor. accessed 28.02.2025. URL: <https://mediu.gov.md/ro/content/4921>.

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### ВИДИ ТЕКСТИЛЬНИХ ВІДХОДІВ ШВЕЙНОЇ ПРОМИСЛОВОСТІ

*Текстильні відходи, отримані від діяльності швейних підприємств, а також в результаті споживання одягу, вносять значний внесок у забруднення навколишнього середовища. Пропагована сьогодні стратегія циклічної економіки, яка включає виробництво сировини, плетіння, крої, шиття, доставку, закупівлю, носіння та повторне використання, охоплює повний цикл із можливістю нульового ефекту у виробництві текстильних відходів. Утилізація текстильних відходів є однією з актуальних проблем і потребує окремого вивчення, оскільки на це впливає декілька факторів.*

**Ключові слова:** одяг, матеріальні залишки, урожайність, відходи, текстиль.