Texmari

Environmental report 2023

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Operational year 2023

The past year 2023 is worth celebrating. We started and progressed towards our sustainable development commitments as a responsible company. However, the journey ahead is long and there are still many challenges and opportunities to reach Texmari's sustainability goals. We work diligently to advance our goal of a sustainable textile industry.

Our business requires co-operation with companies in the field, because our operation is completely focused on sharing materials. We do not operate in a vacuum and without our partners we would not exist. During the past year, we have welcomed organisations of different sizes and domains from the textile industry as our partners. A big thank you goes to like-minded people and companies who share our responsible vision and commit to the development of the industry.

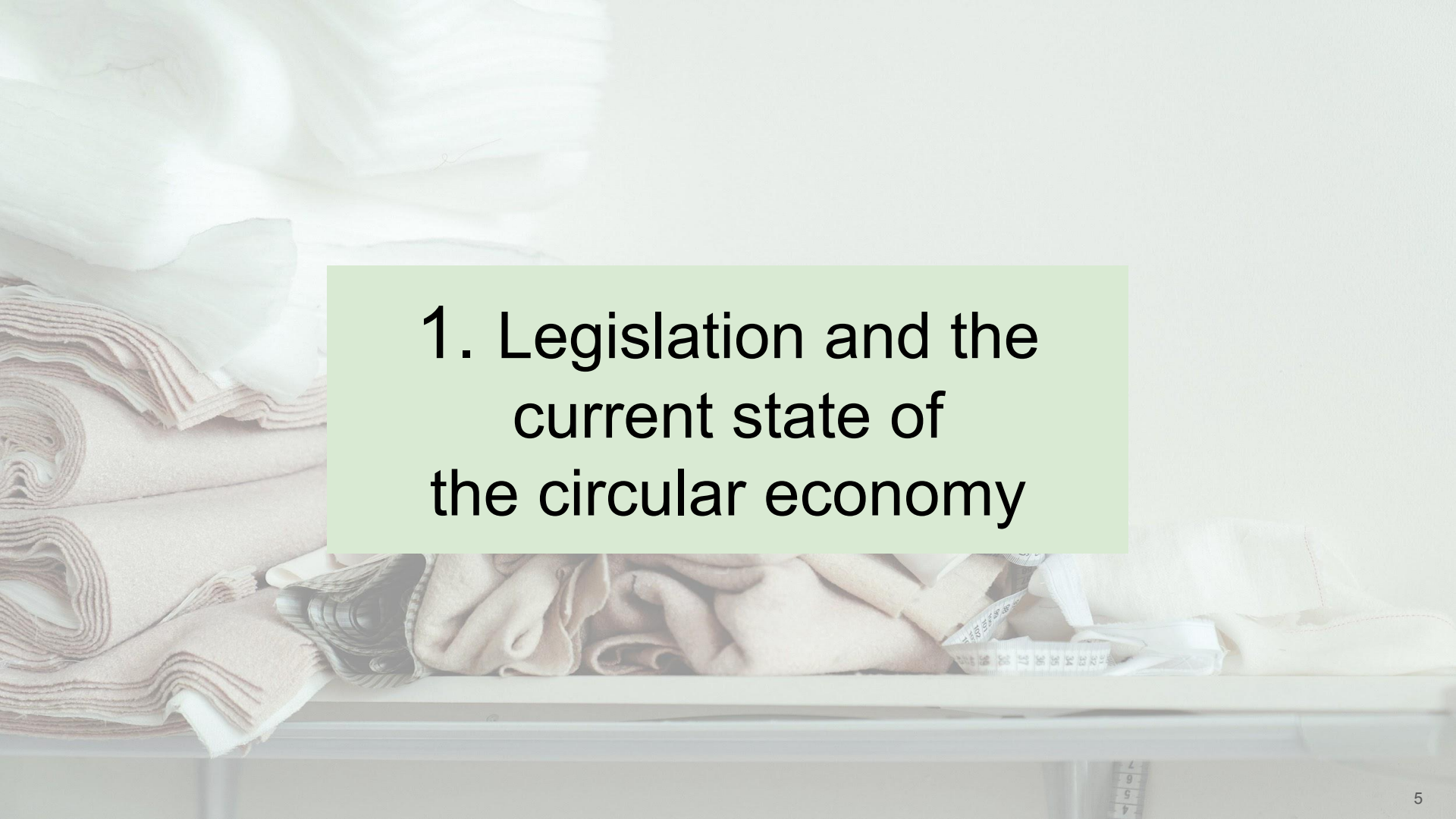
We would like to share some highlights of our work and details in this report. We focus on measuring our success entirely from a sustainability perspective. We are happy to share our journey with you and increase transparency in our work through our activities and services.

We appreciate your partnership and co-operation. Together, we create a more sustainable textile industry and save natural resources for future generations.

We strive to create a community of sustainability advocates who understand the importance of conserving and protecting world's natural resources and act in this way both at work and in everyday life.

For us, measurable activity is everything. Setting long-term goals and objectives is essential, but real progress can only be made by turning those goals into actions, today. It is equally important that the systems in use are regularly monitored. In this way, we can monitor successes and have the opportunity to address possible shortcomings and make changes if necessary. We measure the savings made through our operations, but also how the transportation, distribution and marketing of materials consume resources.

We actively participate in industry development groups to keep up with sustainable development. We want to share our own experience and learn from others. Development work, innovation and learning from others offer development opportunities that allow us to advance our goal of a more sustainable textile industry.



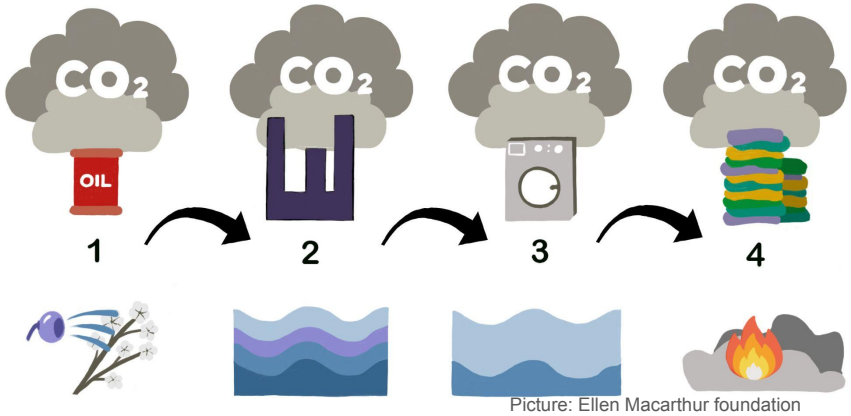
1. Legislation and the current state of the circular economy

In the EU Waste Regulatory Package (2018/851), § 9 obligates member states to promote resource-efficient and sustainable solutions, considering the entire life cycle of products. Section 8 of the Finnish Waste Act (646/2011) also considers sustainability during the entire life cycle from a priority order's perspective.
According to the priority order, it is primarily necessary to try to avoid the generation of waste. However, if waste is generated, it must be prepared for reuse or reused. If reuse is not possible, the waste must be utilised primarily as a substance, i.e. it must be recycled and secondarily used as energy. The priority order and the ban on landfills for organic waste (Government Decree on Landfills 331/2013) have increased the need to develop the recycling of textile materials into recycled raw materials. Therefore, waste fabrics should be primarily thought as a material to be utilised for the original use.

Textiles are not subject to Producer Responsibility, but the importer of textiles must comply with the Product Liability Act and, in terms of operations, environmental and waste legislation and the mandatory legislation of the European Union.

In the textile industry, environmental impacts of textiles are caused at every stage of the production chain. These typically include the production of raw materials, the manufacture of textiles and the use and disposal of textiles after use. More than 90 percent of textile fibers are made from either virgin cotton or oil-based raw materials, which are non-renewable. Producing and using these raw materials is not in line with sustainable production.

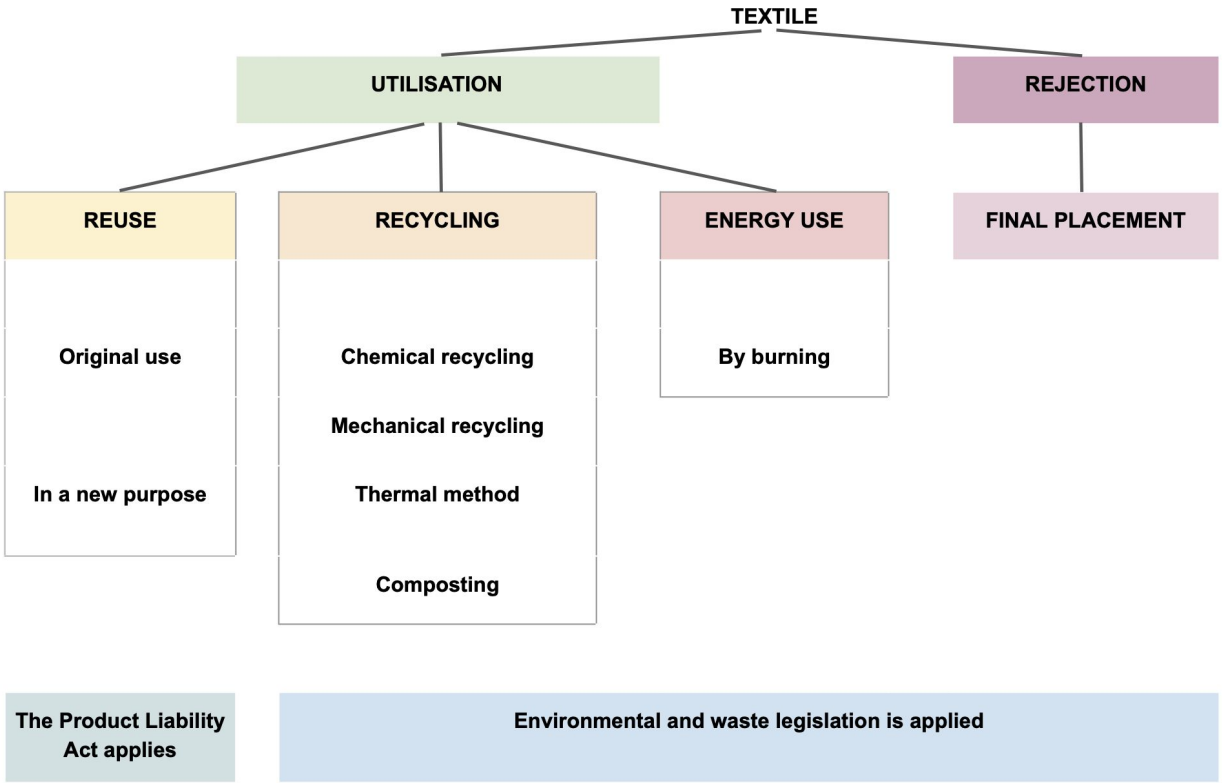
It has been estimated that the textile industry globally causes greenhouse gas emissions of 1.2 billion tons annually, which is more than the emissions of air and freight traffic combined. In the EU alone, greenhouse emissions from the textile industry are estimated to be 121 million tons. The production of textiles in total consumes around 93 billion cubic meters of water each year. In addition to water consumption, large amounts of fertilisers and pesticides are used to grow textile fibers. Globally, the production, dyeing and finishing of textiles cause up to 20 percent of water pollution. The cultivation of natural fibers for the clothing industry "simplifies" nature and is therefore a threat to its diversity.



Picture: Ellen Macarthur foundation

Traditional textile production, distribution and use work almost completely linearly. Raw material production and material manufacturing are responsible for a large part of the total emissions during the life cycle of textiles. A significant part of the life-cycle emissions of Finnish textile products is therefore created before the Finnish companies' own operations. For the manufacture of textile products, a large amount of natural resources and resources are needed for production.

This linear system leaves many economic and environmental opportunities untapped. In addition to these, the model puts pressure on natural resources and regional productions.
Pressure is also created at the end of the chain, because clothes, in particular, are often only used for a short time and the materials are largely lost to landfill or incineration.



The production, import, storage and sale of textiles is governed by legislation. The Product Liability Act applies to finished products and their raw materials. The product and raw material are considered to be in such a condition that it can be used for its original or equivalent purpose.

If the product or material cannot be considered to be in its original condition or it cannot be made into a product for a new purpose, the Environmental Protection Act or the Waste Act shall apply. The purpose of the Environmental Protection Act is to prevent and reduce the amount of waste. Because of this, the product or material must be recycled or, if recycling is not possible, it must be utilised in another way - for example, by burning it for energy.

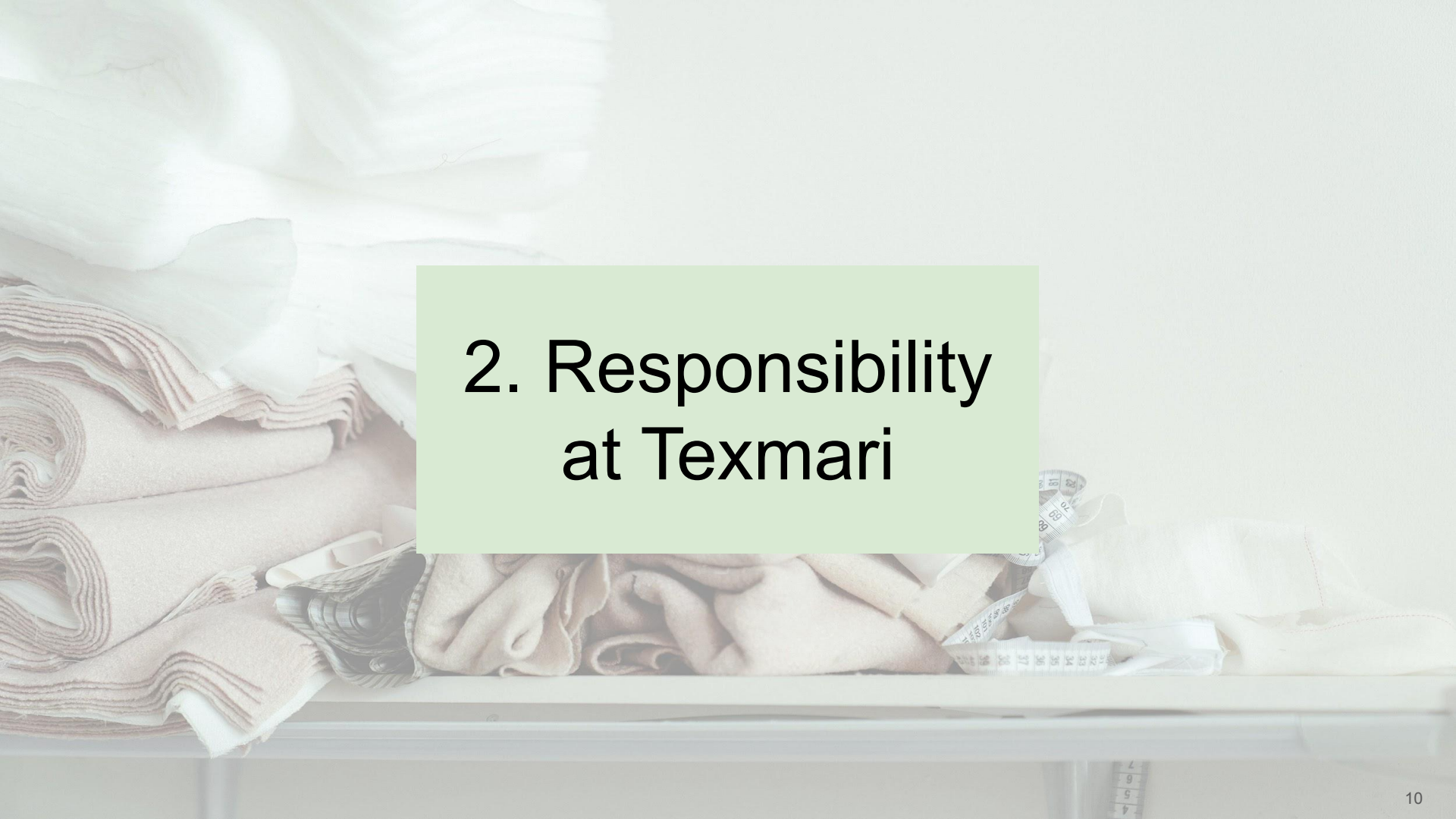
The last possibility for the product or material to be removed is its rejection from other channels and final placement in a landfill. This is no longer allowed in Finland, but there is no ban on the EU level yet.

Artificial fibers are manufactured into their fiber form industrially, while natural fibers occur naturally. **Natural fibers** can be further divided into animal-derived (e.g. wool and silk) and plant-derived (e.g. cotton, linen, hemp) fibers. **Artificial fibers**, on the other hand, into modified fibers (e.g. viscose, modal, soy), synthetic fibers (e.g. polyester and elastane) and inorganic (e.g. carbon fibers and fiberglass) fibers.

Sorting and identifying recycled textiles according to material is important in order to make the recycled fiber suitable for reuse. Textile fibers can be divided according to their chemical origin into natural fibers or man-made fibers and from there on into animal-derived, plant-derived, modified fibers, synthetic fibers and inorganic fibers. The various fiber recycling methods complement each other. Guaranteeing the longest possible life cycle for materials requires identifying which methods are most effective at which stage of the material's life cycle. In addition to the material composition, the textiles can be sorted by color, so that the end result is fiber of a certain colour, and it is not necessary to dye it again.

Textile manufacturers are guided to use recycled raw materials in their production. However, this requires that enough high-quality material is available, which is why it is not easy to reach the goal according to EU legislation. Legislation is based on an understanding of the limitations of natural resources, environmental pollution and climate change.

The change from a linear economic model to closer to recycling production requires knowing the environmental effects of materials and products throughout their entire life cycle. These can be assessed using so-called life cycle models - life cycle assessment; LCA. Traditionally, the climate load caused by products and materials has been measured as a carbon footprint, but the water footprint, which measures the use of water resources, has also increasingly appeared alongside it.



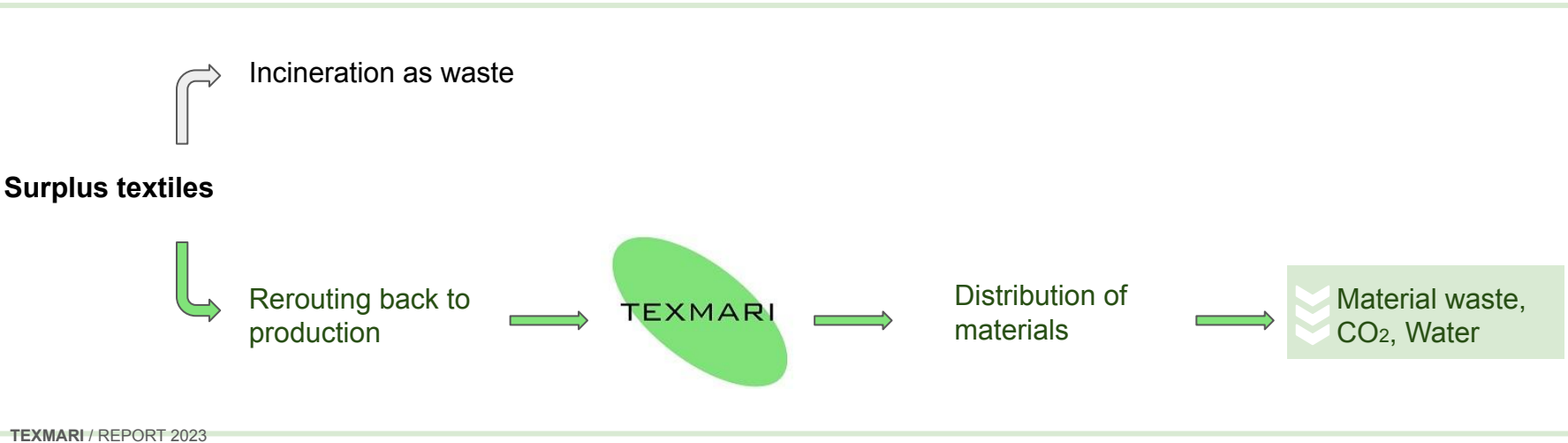
2. Responsibility at Texmari

Texmari's goal is to promote the use of secondary raw materials, i.e. industrial by-products, and the utilisation of these materials. Above all, the purpose is to increase the awareness of sustainable development in the textile industry, in order to take into account the environmental impact during the life cycle of materials and products.

The goal is to prevent usable fabrics and other textile industry materials from ending up as waste and incineration. Our goal is therefore to reduce the inputs that are needed to maintain the current consuming textile system.

On the industrial side, there is no systematic collection of textiles and the responsibility lies entirely with the companies themselves. Considering the size and characteristics of the Finnish textile industry, many companies fail to do the responsibility work because it requires resources that many small companies do not have.

There are many different actors working in textiles and there are many different operating models in the sector; small business, industrial manufacturing, product sales and service provision. Due to this, the emission sources and emission challenges of companies in the sector are different. Climate work, carbon footprint determination and resources are thus very diverse.



Various environmental effects arise from recycling, reuse and more efficient utilisation of materials. However, it is clear that extending the life cycle of materials is a better option than disposal, from an environmental point of view. For example, the production of one kilogram of cotton takes about 10,000 liters of water, in addition to which various chemicals are processed in the production and carbon dioxide emissions are generated.

THE SIDE STREAM OF PRODUCTION SHOULD BE THOUGHT OF AS MATERIAL THAT CAN BE UTILISED RESOURCE-EFFICIENTLY IN ITS ORIGINAL FORM.

A functioning material cycle would require an efficient collection system and a steady and large enough material flow. The steadily supplied side stream should meet the industry's need for predictability and availability of material flows. If the material flow is small and the predictability of the availability of the type and quality of the material is weak, it is difficult for companies to plan their production taking surplus textiles into account.

Getting surplus textiles into circulation requires expertise; the material's technical data and possible uses must be known. The key is co-operation between the seller and the buyer, so that the right material finds the right target.

In the initial phase, Texmari has focused on guiding companies and informing them about the available recycled materials.

3. Key numbers

Responsibility is one of the drivers that most strongly changes the fashion and textile industry.

Comprehensive responsibility work is important, because supply chains in our industry are long and complex. Developing transparency and responsibility in the supply chain requires long-term work both within our company and together with our partners.
On the other hand, a significant part of the environmental impact of our value chain arises from the distribution and use of materials.

In 2023, we performed a thorough carbon footprint calculation, the purpose of which was to form a starting point for our emission reduction measures. The majority (nearly 70%) of side stream material trades were made through the Texmari platform and the remaining approximately 30% of trades were made as direct orders through material enquiries.

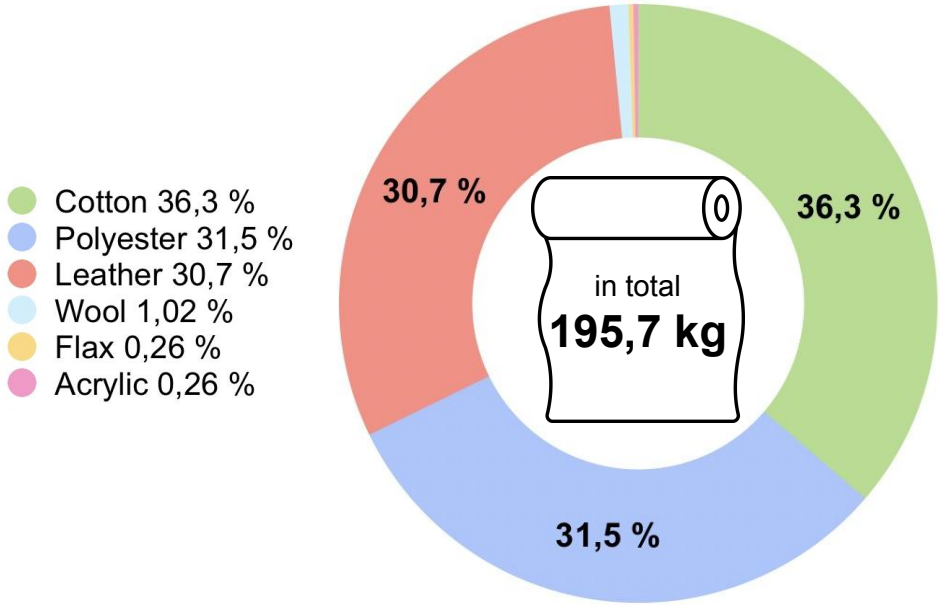
We report openly and transparently. We present all the material and emissions data we receive to the extent that they can be considered reliable. We cannot reliably determine the chemical release that occurs during the manufacture of materials, so we leave it outside of this report. The information presented as carbon dioxide and water consumption is based on information collected in our calculation system and corrected by material composition.

In order to reduce emissions from logistics, we strive to optimise and find shorter transport routes and to choose lower emission forms of transport.

Side streams as materials

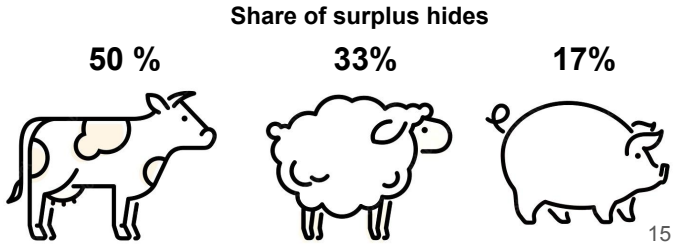
During 2023, 195,7 kg of textile materials were saved through Texmari, the majority of which were cotton, polyester and leather. The division between plant fibers, synthetic fibers and materials of animal origin was very even.

Plant fibers	**36,5%**
Synthetic fibres	**31,8%**
Animal fibers	**31,7%**



It is essential to understand that most of the total emissions and environmental consumption of textiles is generated in the production and manufacture of the material. It doesn't matter to the climate where the emissions are created, the formation of Finnish textile's carbon footprint starts from the initial production.

Depending on the material, its manufacturing method and processing, the materials returned to production saved varying amounts of water and carbon dioxide emissions.



Side streams as CO_2 savings

13 249 kg of carbon dioxide emissions were saved by returning materials to production. In addition, we took into account the fact that these materials were not destroyed by burning, which resulted in a CO_2 saving of 3 915 kg. So a total of 17 164 kilograms of CO_2 savings.

Among the materials returned to production, the most CO_2-intensive were polyester and leather.

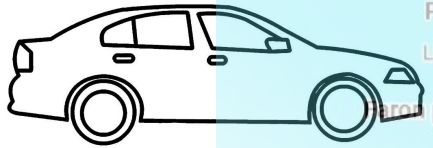
The saved carbon dioxide corresponds to the annual CO_2 emissions of 1,7 Finns or 119 443 driving kilometers - driving, for example, twelve times from Helsinki to the southern part of Portugal and back.

Emissions from textiles are mainly (about 70%) generated from the production

- yarn production
- material preparation
- wet processing
- cutting, sewing and manufacturing the product

Brand operations, i.e. transportation of products and resale has the lowest carbon dioxide emissions causative function in the textile life cycle (about 10%). In contrast, the product use and removal of the product cause most of the emissions (about 20%) after the production.

CO_2 savings are equivalent to 119,443 driving kilometers.
The circumference of the earth is 40 075 km.



Side streams as water

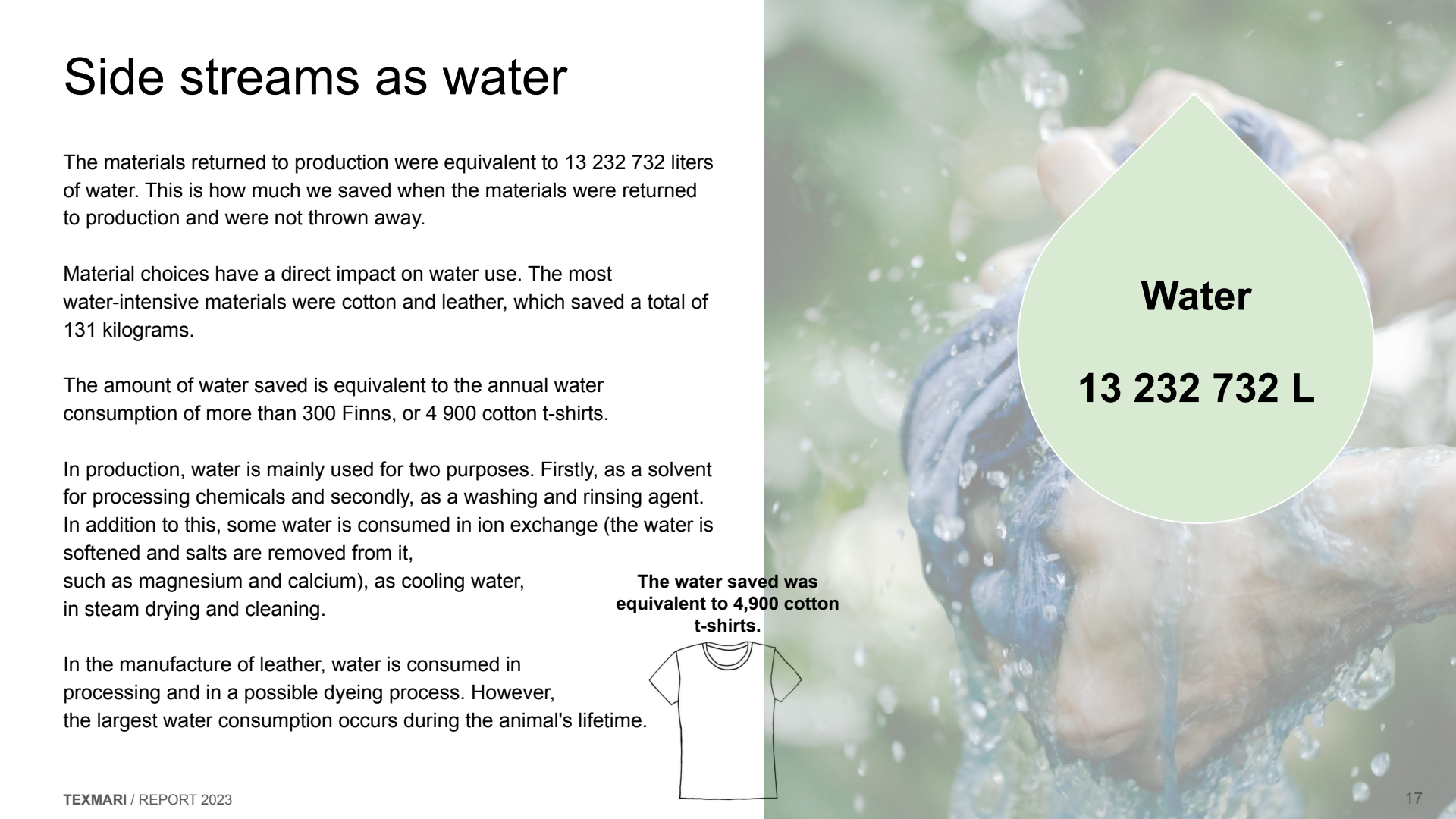
The materials returned to production were equivalent to 13 232 732 liters of water. This is how much we saved when the materials were returned to production and were not thrown away.

Material choices have a direct impact on water use. The most water-intensive materials were cotton and leather, which saved a total of 131 kilograms.

The amount of water saved is equivalent to the annual water consumption of more than 300 Finns, or 4 900 cotton t-shirts.

In production, water is mainly used for two purposes. Firstly, as a solvent for processing chemicals and secondly, as a washing and rinsing agent. In addition to this, some water is consumed in ion exchange (the water is softened and salts are removed from it,
such as magnesium and calcium), as cooling water, in steam drying and cleaning.

In the manufacture of leather, water is consumed in processing and in a possible dyeing process. However, the largest water consumption occurs during the animal's lifetime.



The water saved was equivalent to 4,900 cotton t-shirts.

Transport of side streams and use of materials

5 458 kg of CO_2 emissions were caused by transportation. The companies used were Posti, Matkahuolto, DHL and Postnord. Some of the companies use emission compensation, but we did not take that into account.

With emission compensation, transport companies buy emission credit units and use them to compensate for the emissions caused. The problem with emission compensation is their varying quality and lack of regulation and supervision. Although the goal is to reduce emissions, compensation should not be the primary means of reducing them, but using more fuel-efficient vehicles and low-emission fuels.

Clothes, bags and shoes - you can make anything from side streams

Clothes, bags and shoes were mainly made from the saved side stream materials. In the future, Texmari's purpose is to develop a sustainable textile sector with stakeholders and solutions for textiles remaining in storage, so that the utilisation of the material in the textile sector would be more effective. Decisions made during the planning phase affect the consumption of materials, so closer co-operation with operators is necessary for the industry.

4. Outlook

Sustainability and environmental protection are gradually becoming important factors in the textile industry. We encourage the use of side stream materials and saving natural resources. With our actions, we want to highlight the textile industry's waste problem and show how new, sustainable products are made from unused materials.

The Finnish textile industry mainly causes emissions other than through its direct operations, the industry can change its operations in such a way that it supports the goal of carbon neutrality in the entire chain. Operators have a great opportunity to influence material choices and subcontracting agreements.

Operators are dependent on the material supply in the supply chain and whether lower-emission alternatives are available for both materials and services. Acting outside of one's own activities would be the greatest opportunity to influence global climate change, but it is more difficult to implement and monitor its effects than one’s direct own actions.

Currently, the recycling chain is challenged by the fact that there is no suitable recycling method available for different textile materials. The material is not directed directly to the most efficient recycling method, when information about the climate effects of different methods are still incomplete. In the future, this will require more measures and the establishment of the textile industry as a more sustainable industry.

In the big picture, the sustainability of the textile industry is not only dependent on materials and the cycle of materials, but in the future it can also be demanded that operators pay attention to the source of the energy they use and balance the operator either through a carbon sink or compensation.

At the EU level, separate recycling of textiles should start by 2025. In Finland, separate recycling was nominally started already in 2023, but hastily. As part of separate recycling, the Producer Responsibility Act will possibly be extended to also cover textiles. When implemented, the policy would be EU-wide. In Finland, the haste has partly led to the fact that usable textiles have ended up as waste textiles.

Textile recycling does not only extend to Finland, and it is not only a Finnish problem. Textile recycling is not a new phenomenon, but for the first time, attention is turning to companies and their responsibility.

As a counterweight to the costs of recycling and emission reductions and the required investments, it is good to understand the financial aspects; required investments, costs over the entire life cycle and utilisation of the added value obtained in marketing and sales. It is possible to reduce the cost pressure through joint action, but it requires a change in the market and company operations.

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