Circular Textiles Economy: Challenges and Opportunities

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CORFU 2022 9th International Conference on Sustainable Solid Waste Management
15-18 June 2022, Corfu, Greece

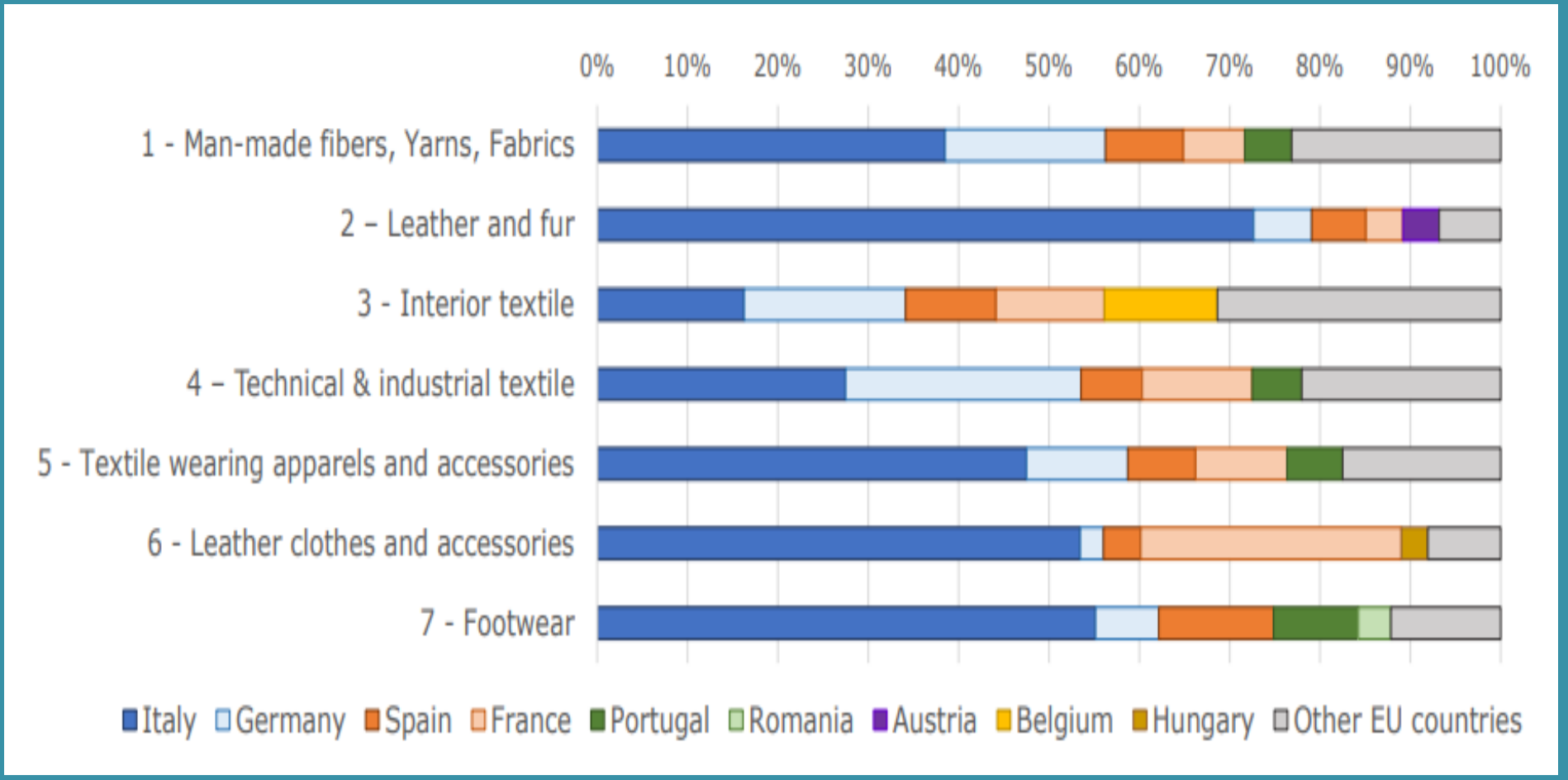
The Textiles Industry

- A major economic sector in the EU and globally
- 171.000 textile industries in Europe, supporting 1,7 million jobs.
- Global production of textiles has tripled since 1975
- Synthetic fibres constitute 60% of the global production

The Textiles Industry

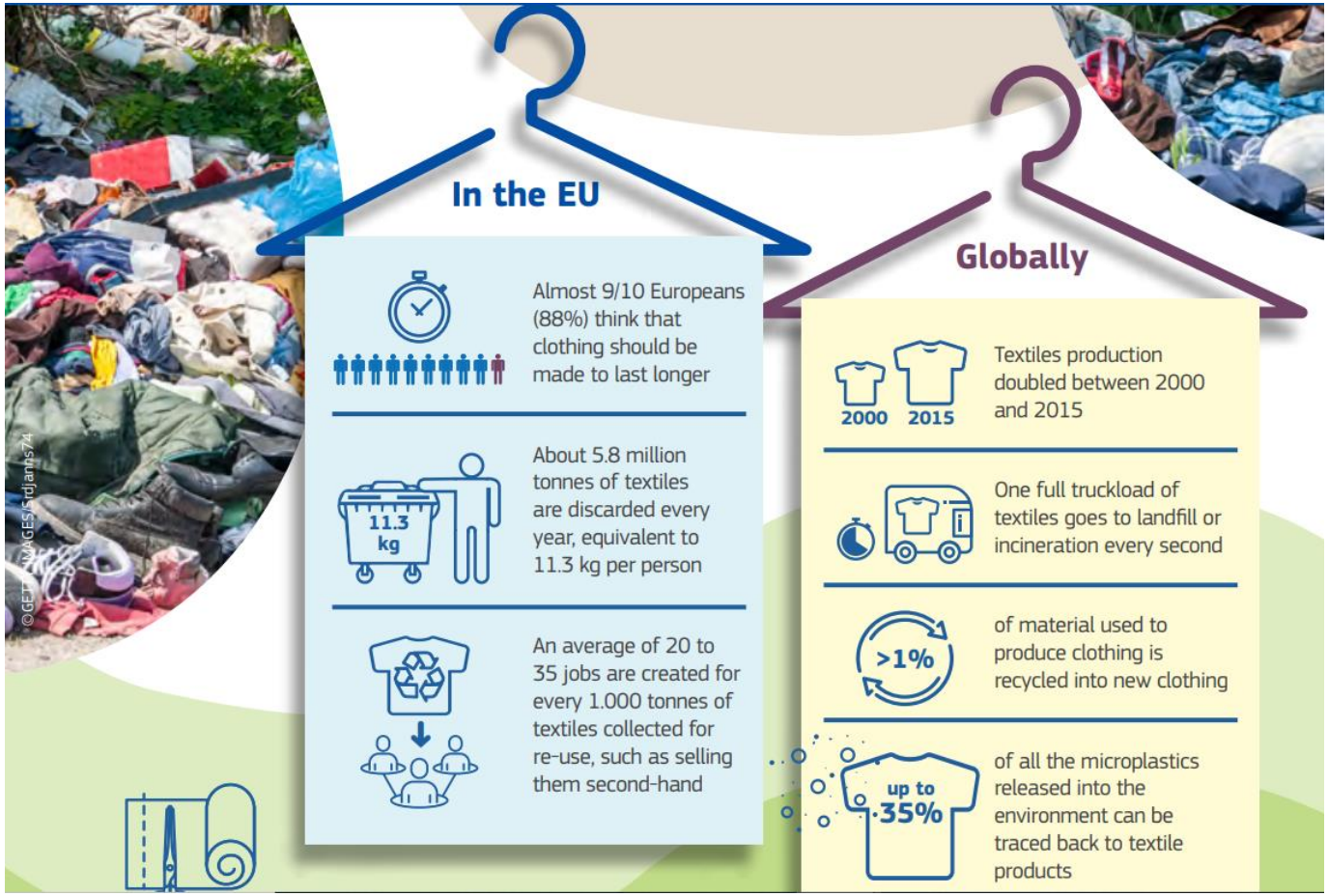
- Fast fashion creates enormous environmental pressure. Every year textile waste is as high as **11 kgs per capita**
- In 2019, consumers' expenditure on textiles accounted for **520 billion euros** at EU level
- Only **15%** w/w **of the discarded textiles are reused or recycled while** 85% w/w are burned or landfilled.
- Only 1% fibre-to-fibre recycling

Top EU producers by subsector



Source: Based on data from Eurostat Structural Business Statistics. CSIL report on Data on the EU Textiles Ecosystem and its Competitiveness, (shares of total EU production, average 2015-18)

The Linear Textiles Economy



Environmental and Climate Impacts

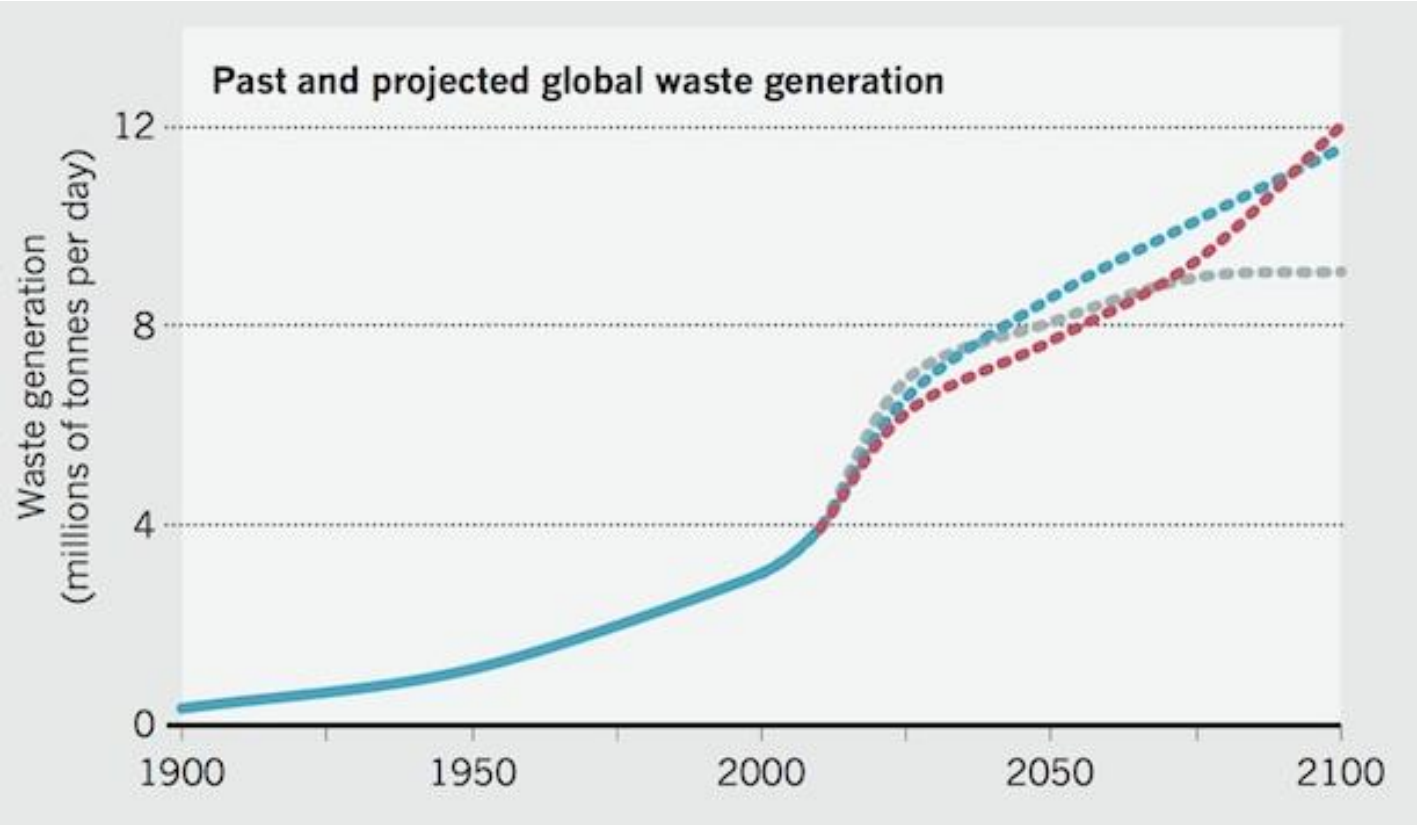
The textiles economy has a big environmental footprint.

- It is ranked fourth pressure category in terms of resource intensity, energy and water, after food production, the buildings sector and transport.
- In terms of **land use** the textiles economy is the second most impactful activity and fifth in terms of greenhouse gas emissions.
- To calculate the overall impact, we should take into account the use of herbicides in the production of raw materials (e.g. cotton) and the use of hazardous chemicals in the industrial production of textiles and the associated air pollution.

Environmental and Climate Impacts

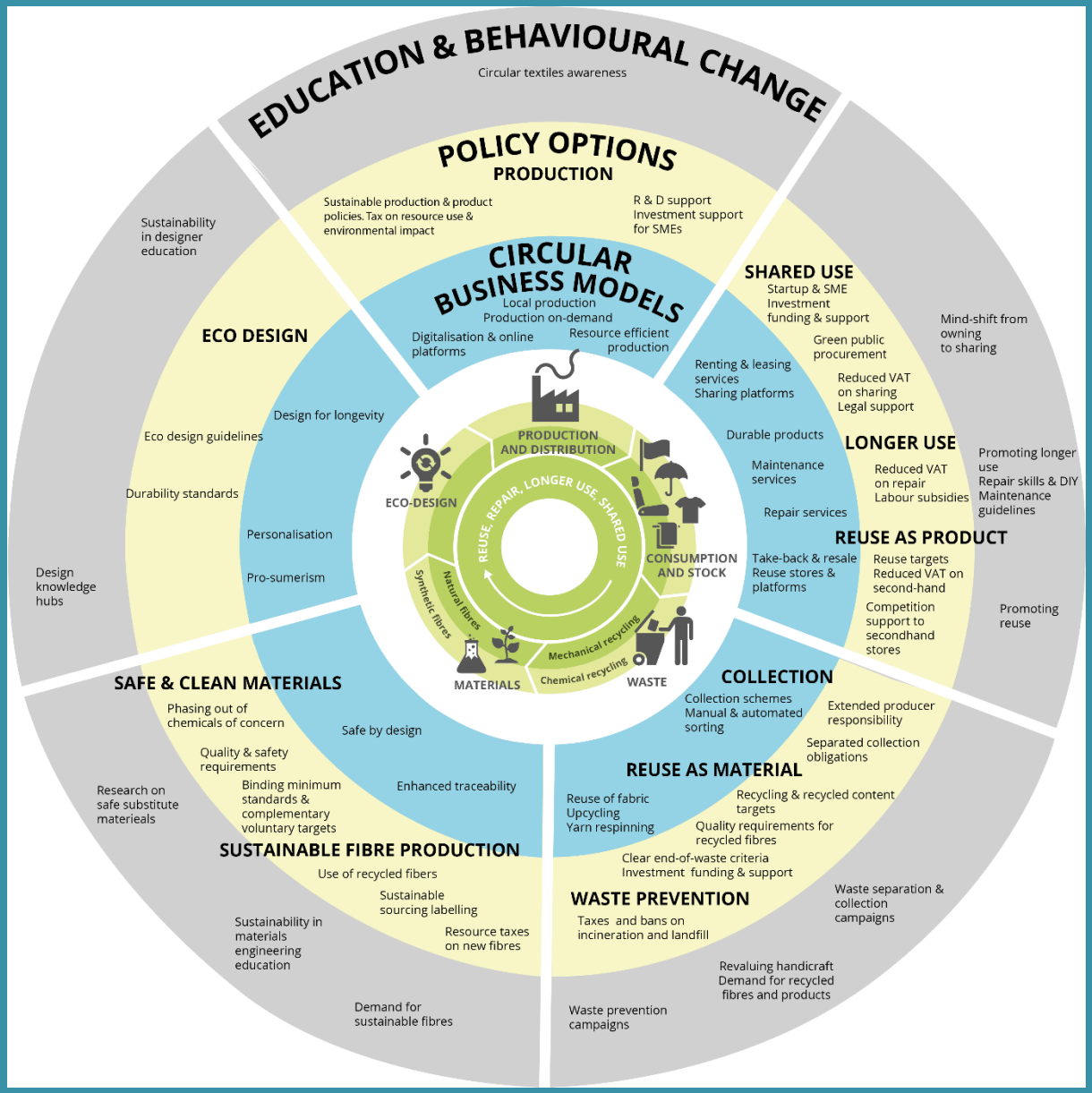
Water consumption at global level	CO_2 emissions	Toxic substances	Water Pollution
93 billion m3 per year	15-35 tonnes/tonne of textiles	3500 chemical substances	20% of the global water pollution
	5th in terms of greenhouse gas emissions - 10% of global GHG emissions	750 toxic to humans	½ million tonnes of microplastics per year
		440 ecotoxic substances	

Global waste generation in a linear economy



Global waste generation predictions (Hoornweg, Bhada-Tata and Kennedy, 2013)

Circular Production and Consumption of Textiles:



Regulatory Framework for Waste Textiles

- All member states will implement separate collection of waste textiles by 1-1-2025
- **Extended producer responsibility schemes**.
- "Producers of products covered by these schemes must take responsibility for the management of the waste stage of their products, and will be required to contribute financially. Member states shall endeavour to ensure that as of 2030, all waste suitable for recycling or other recovery, in particular in municipal waste, shall not be accepted in a landfill."

EU Vision on Circular Textiles

- ***"By 2030 textile products placed on the EU market are long-lived and recyclable, to a great extent made of recycled fibres, free of hazardous substances and produced in respect of social rights and the environment. Consumers benefit longer from high quality affordable textiles, fast fashion is out of fashion, and economically profitable re-use and repair services are widely available. In a competitive, resilient and innovative textiles sector, producers take responsibility for their products along the value chain, including when they become waste. The circular textiles ecosystem is thriving, driven by sufficient capacities for innovative fibre-to-fibre recycling, while the incineration and landfilling of textiles is reduced to the minimum."***

- ***EU COMISSION , 30-3-22***

Main Challenges

Enhancing Resource Efficiency

Priority to the sustainable, circular design of textiles, based on life cycle assessment.

Design of textiles to enable **textile-to-textile recycling**

A useful tool that provides environmental information: Product Environmental Footprint (PEF)

Training for eco-design will assist the textile designers to incorporate circular criteria.

Main Challenges

Closing the loop

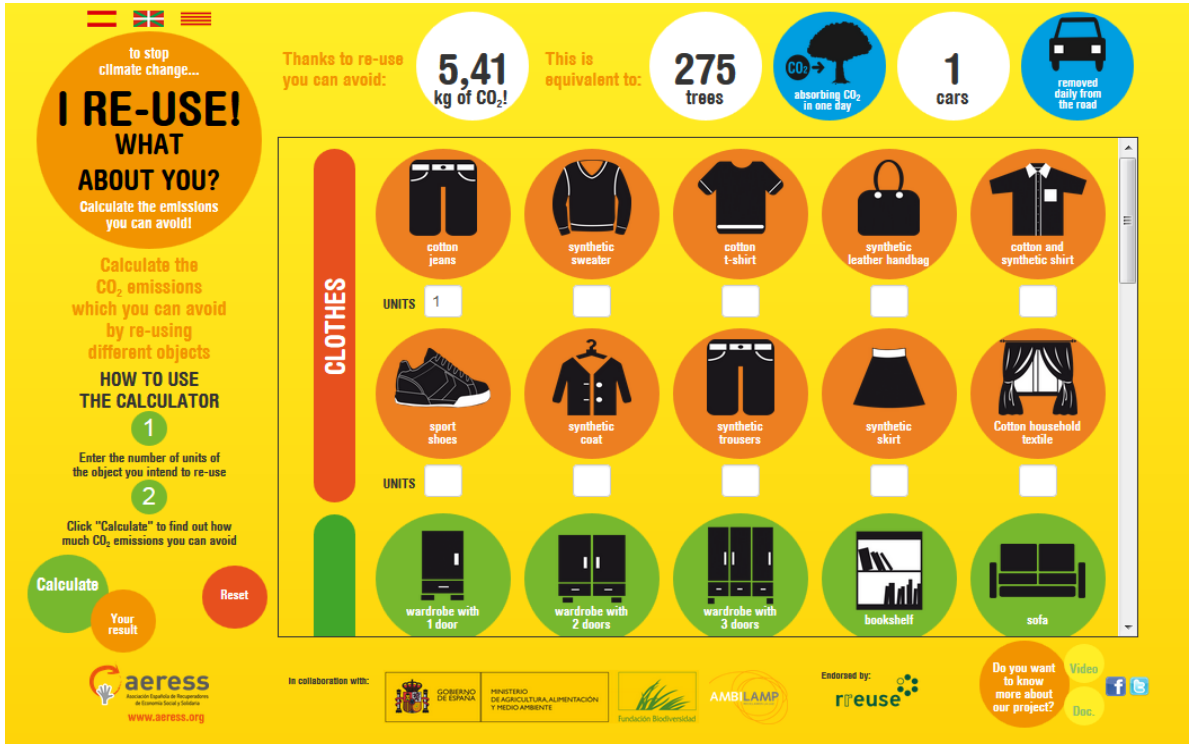
Setting up a supply chain for recycled fibres and textiles and increasing demand for recycled fibres.

Many initiatives to increase the use of recycled fibres in the supply chain:

Collective closed loop platforms

The Milan-based company C.L.A.S.S (Creativity Lifestyle and Sustainable Synergy) and Gucci have established an exchange platform, Re.Verso, for recycled materials with partners across the textile value chain. Via the hub, producers of textile products provide mills with pre-consumer, or in some cases post-consumer, textile waste (mostly wool but also other fibre types) which they pocess into new yarns. In turn, participating partners can purchase yarns with recycled content via the Re.Verso platform. All recycled content exchanged via Re.Verso can be traced back to its original source.

REUSE of Textiles
Reduction in CO_2 emissions



http://reutilizayevitaco2.aeress.org/en

Closing the Loop - GPP

Green public procurement (GPP): textiles with recycled content.

Successful cases of GPP in the Nordic countries, UK, Belgium, France and the Netherlands.

Circular Economy and Innovation

- Use of Organic Cotton
- Sustainable Processing Technologies
- Manufacturing in adjacent facilities
- 98% cotton content
- no leather sticks
- reuse of old jeans
- rent your leans

Recycled «blue jean» (NED)

http://www.mudjeans.eu

Main Challenges

Ensuring effective collection of waste textiles

- Some fashion brands and retails already implement collection of waste textiles, providing a discount to customers that participate, in coordination with the textiles recycling industry.
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- The successful implementation of EPR has certain prerequisites: The use of the appropriate collection infrastructure at National level and the collaboration with the municipalities and citizens.
- Question: How will the second hand market work? Will it absorb the textiles prepared for reuse? What will be the cost of the preparation for reuse?

Main Challenges

End of waste criteria at EU level are required

- Define criteria for which textile waste ceases to be waste. This would support and expand the market of secondary fibres (having a higher price), as a valuable resource for further uses.

Main Challenges

Technological Aspects:

Improvement of sorting and recycling technologies and the development of sustainable raw materials

Boosting research and development for the technological improvements

Support business opportunities in the production of alternative, sustainable raw materials (for example, using waste from the food industry to produce fibres) and in the improvement of recycling technologies

Today:

High sorting cost. The automated sorting does not work well.

Chemical recycling requires significant improvements

R&D projects (e.g. European Project Resyntex)

Main Challenges

Eliminating hazardous chemicals in textiles production and the overall textiles life cycle

Finding solutions for the prevention of microplastics entering the environment from the production and consumption of textiles.

EURATEX recommendations:

1. EPR should be designed to support circularity
2. EPR should value different Textiles
3. EPR should solve real problems
4. No contradictions in EPR schemes for textiles across the EU
5. There should be agreement for 1 single Eco-modulation concept
6. EPRs scheme should not bear detrimental unintended consequences
7. EPR should enable CE through cooperation and shared responsibility

EURATEX represents the European Textile and Apparel Industry/Position paper, Oct. 2020

Main Obstacles and Challenges

A shift in consumption patterns is required.

“Fast fashion is out of fashion”

Consumers can drive the transition to circular textiles by opting for sustainable and ethical fashion.

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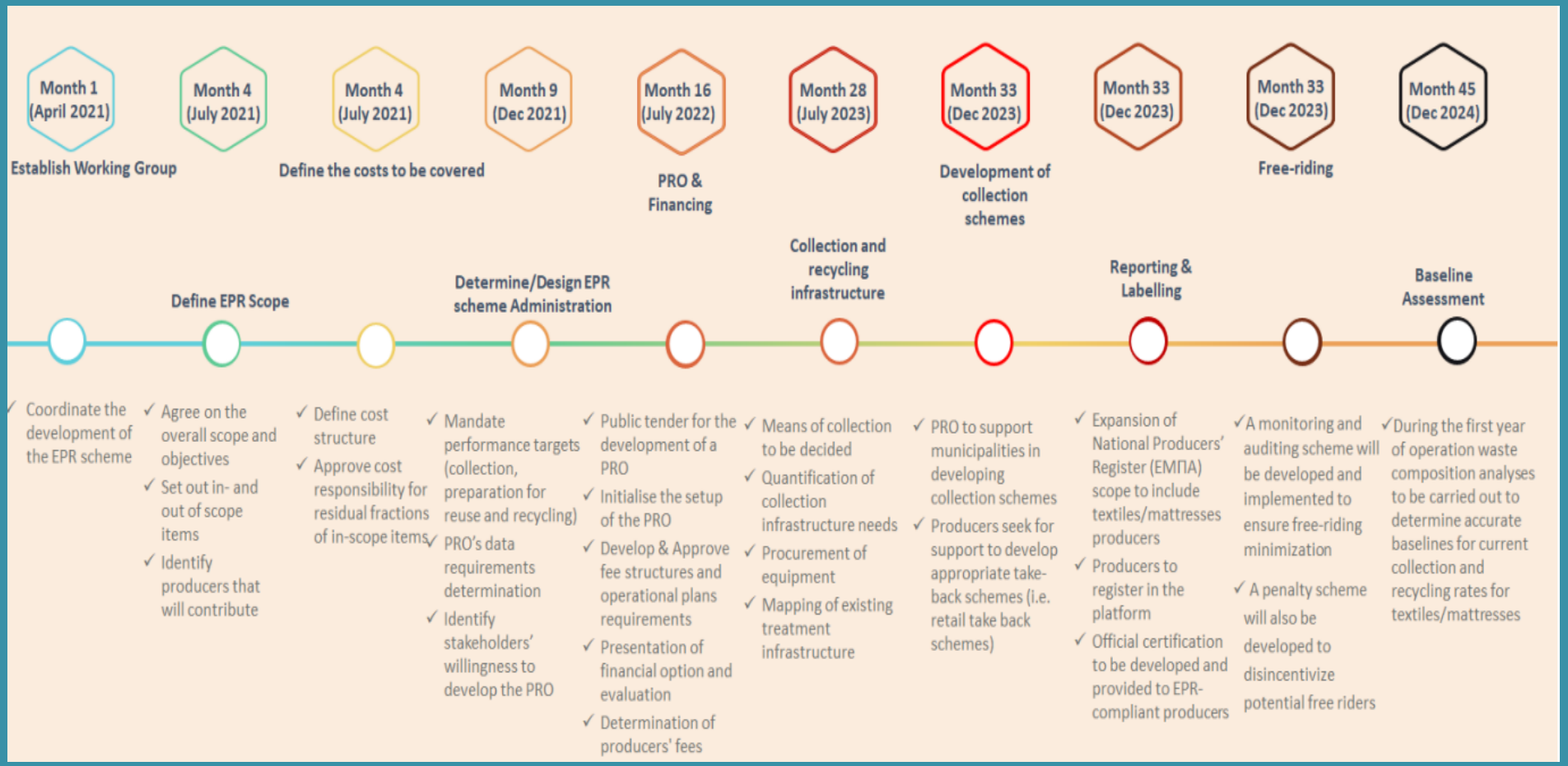
The circular textiles model in Greece: steps forward

- Preparation of the EPR scheme: infrastructure, organization, administration
- Reuse and recycling: new facilities are needed in Greece
- Recovery of good quality fibres
- exploit new raw materials from renewable and sustainable sources

Most of the currently running EPRs were designed in a linear economy model, as far as 30 years ago and run in several sectors as packaging, vehicles, electrical and electronic equipment. EPRs have, therefore, gained some support based on experiences in value chains which are different from the textile one.

Implementation Road Map
EPR for textiles and mattresses



Source: Support on EPR schemes for mattresses and textiles for Greece (EU2021-GIZ, BMU, YPEN)
https://www.giz.de/en/downloads/Final%20Report%20EPR%20textiles%20mattresses%20EN.pdf

Circular Textiles Future Potential

Certified Circular Design

Fibre to fibre or closed loop recycling

Networks and Collaboration

Data Banks for sustainable raw materials and production of textiles

Elimination of Hazardous Chemicals and Microplastics

Sustainable Consumption – Circular and Ethical Fashion

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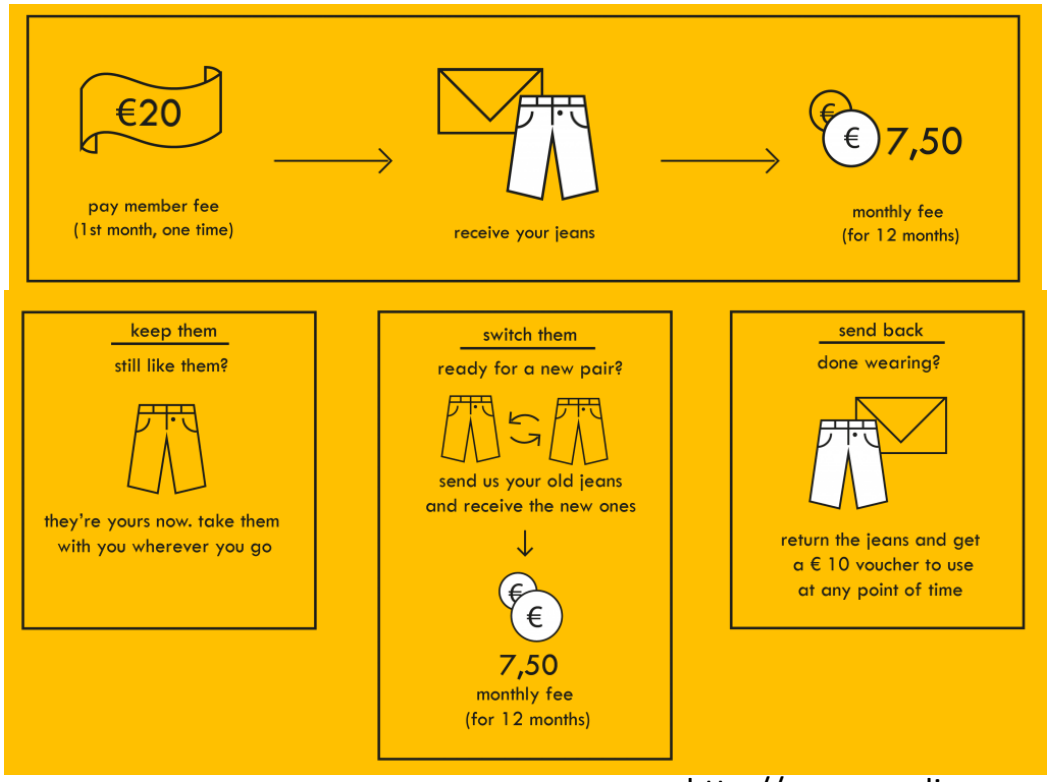
New Business Models

Renting a blue jean



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Thank you for your attention!