



# **Unit 2 Environmental issues in the T&C Industry**

## **Lecture 2.1 Environmental impact of T&C sector**

*D 2.1 Training toolkit and e-book*

May 2021- Matteo Paradisi (CIAPE)



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# Lecture 2.1 Environmental impact of T&C sector

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## Lecture 2.1 Environmental impact of T&C sector

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## Lecture 2.1 Environmental impact of T&C sector

# The environmental problems of textile sector

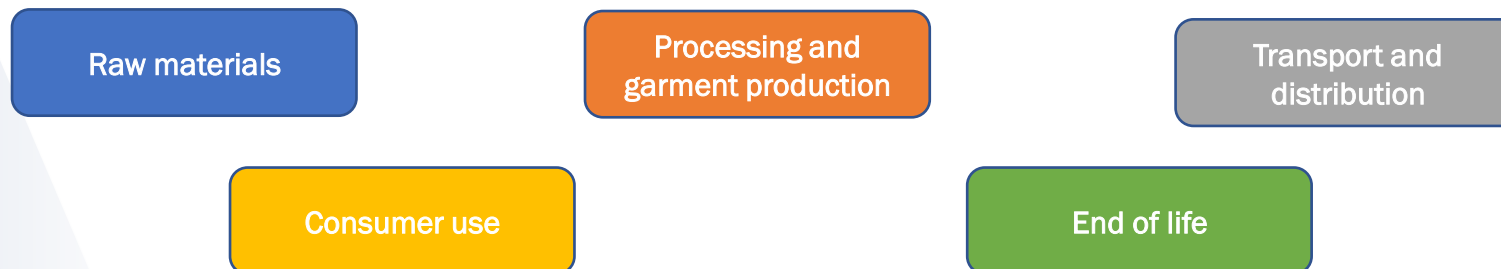
The pollution produced by the textile industry has a huge impact on the planet. The production of raw materials, spinning them into fibres, weaving fabrics and dyeing require enormous amounts of water and chemicals, including pesticides for growing raw materials such as cotton. Consumer use also has a large environmental footprint due to the water, energy and chemicals used in washing, tumble drying and ironing, as well as to microplastics shed into the environment.

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# The environmental problems of textile sector

### Key points about environmental impacts of textile and clothing industry

In 2019 the European Parliament published a document called “Environmental impact of the textile and clothing industry. What consumers need to know” where, among other things, are summarised the key points of environmental impacts of this sector.

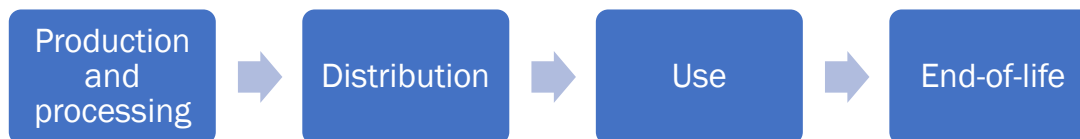


## Lecture 2.1 Environmental impact of T&C sector

# The environmental problems of textile sector

## The life cycle impacts of the textiles value chain

According to the report “Environmental Improvement Potential of textiles (IMPRO Textiles)” made by the Joint Research Centre, the life cycle impacts of the textiles value chain can be analysed within four phases: Production and processing; Distribution; Use; End-of-life.



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# The environmental problems of textile sector

### The life cycle impacts of the textiles value chain

According to the same report, the environmental impacts of textile consumption and use are both supply- and demand -driven.

Supply factors	Demand factors
agricultural practices	choice of products/fibres
production processes of the textile industry	care practices (washing, drying, ironing)
product design and functionalities of washing/drying/ironing appliances	lifetime of product in a context of fast fashion
existence of sorting and recycling schemes	disposal practices

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# The environmental problems of textile sector

## The challenge of the “circular economy” in textile sector

“The Circular Economy” is rapidly becoming one of the most used terms in the European textile and clothing industry. It provides a guideline for the industry in terms of several aspects:

- ✓ making investments in production technology (cleaner and less resource-consuming),
- ✓ product development (more sustainable products, focus on recyclability)
- ✓ in respect to the selection of textile materials (more focus on the use of sustainable fibres).



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# The environmental problems of textile sector

### The challenge of the “circular economy” in textile sector

The industry still faces tough challenges in the transition from a traditional linear production and consumption model (take – make – dispose) to a circular model. In a circular model it is essential to cooperate with all stakeholders in production, retail and waste processing. Due to its fragmented, SME-dominated structure, the industry lacks the authority to enforce such a corporation with other essential stakeholders in the value chain. The future challenge is making a chain move in circles.

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# Sustainability in textile and clothing sector

### Sustainability

*Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs.* Specifically, sustainable development is a way of organizing society so that it can exist in the long term. This means taking into account both the imperatives present and those of the future, such as the preservation of the environment and natural resources or social and economic equity.

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# Sustainability in textile and clothing sector

### The three pillars of sustainability

The environmental pillar

The social pillar

The economic pillar

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# Sustainability in textile and clothing sector

## The three pillars of sustainability

The *environmental pillar* often gets the most attention. Companies have found that have a beneficial impact on the planet can also have a positive financial impact. One of the challenges with the environmental pillar is that a business's impact are often not fully costed, meaning that there are externalities that aren't being captured.

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# Sustainability in textile and clothing sector

### The three pillars of sustainability

A sustainable business should have the support and approval of its employees, stakeholders and the community it operates in (*social pillar*). The approaches to securing and maintaining this support are various, but it comes down to treating employees fairly and being a good neighbor and community member, both locally and globally.

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# Sustainability in textile and clothing sector

### The three pillars of sustainability

The *economic pillar* of sustainability is where most businesses feel they are on firm ground. To be sustainable, a business must be profitable. That said, profit cannot trump the other two pillars. In fact, profit at any cost is not at all what the economic pillar is about. Activities that fit under the economic pillar include compliance, proper governance and risk management.

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# Sustainability in textile and clothing sector

## Responsible production for companies

Responsible Production is about the ways in which companies produce goods and services. It is a concept strictly linked to the goal 12 of Sustainable Development Goals: Responsible consumption and production. Following this principle, companies, in addition to ensure continuous compliance with laws in carrying out their activities, are committed to:

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# Sustainability in textile and clothing sector

### Responsible production for companies

- ✓ Design products / services and production processes in order to minimize and, where possible, eliminate social and environmental impacts throughout the life cycle
- ✓ Innovate the corporate governance system by developing business strategies, with particular attention to sustainability Promote the transition to the circular economy
- ✓ Strengthen the strategic vision of the supply chain system
- ✓ Give priority to the adoption of innovative production processes
- ✓ Apply responsible procurement methods
- ✓ Encourage the creation of a collaborative and participatory atmosphere with all categories of stakeholders
- ✓ Communicate to the customer in a clear and transparent way
- ✓ Avoid tax evasion
- ✓ Account for the activity carried out in a clear and transparent manner



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# Ecological production in the textile sector

### The Strategic Innovation and Research Agenda for the European Textile and Clothing Industry

According to the new Circular Economy Action Plan for a cleaner and more competitive Europe, textiles are the fourth highest-pressure category for the use of primary raw materials and water, after food, housing and transport, and fifth for GHG emissions. The ecological production will play a crucial role in the textile field over the next years.

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# Ecological production in the textile sector

### The Strategic Innovation and Research Agenda for the European Textile and Clothing Industry

In the light of the complexity of the textile value chain, to respond to these challenges the Commission proposes a comprehensive EU Strategy for Textiles, based on input from industry and other stakeholders. The strategy aims at strengthening industrial competitiveness and innovation in the sector, boosting the EU market for sustainable and circular textiles, including the market for textile reuse, addressing fast fashion and driving new business models.

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# Ecological production in the textile sector

### The Strategic Innovation and Research Agenda for the European Textile and Clothing Industry

According to the Strategic Innovation and Research Agenda for the European Textile and Clothing Industry ,3 powerful innovation drivers will impact this industry in the coming years.

- a) digitisation of products, processes, factories, workplaces, supply chains, distribution and retail;
- b) sustainability, circularity and resource efficiency of materials, processes and overall business operations
- c) the proliferation of new business and consumption models based on sharing of productive resources and final products, servitisation, pay-per-use or subscription models.

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# Ecological production in the textile sector

### The Strategic Innovation and Research Agenda for the European Textile and Clothing Industry

The Strategic Innovation and Research Agenda, in 2016, singled out four strategic innovation themes as particularly impactful for the further development of the European textile and clothing industry:

1. Smart, high-performance materials
2. Advanced digitised manufacturing, value chains and business models
3. Circular economy and resource efficiency
4. High-value added solutions for attractive growth markets

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# Ecological production in the textile sector

**The Strategic Innovation and Research Agenda for the European Textile and Clothing Industry – Focus on theme n.3 Circular economy and resource efficiency**

The Textile and Clothing industry is in the business of transforming resources (materials, energy, water, chemicals) into value added products for professional or private end users. Reasons:

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# Ecological production in the textile sector

### Focus on theme n.3 Circular economy and resource efficiency

- ✓ Several textile production processes, such as dyeing and finishing, are very resource-intensive.
- ✓ Since the consumption of these resources is not free, companies have a natural incentive to use them as efficiently as possible.
- ✓ Tightening legislation on energy efficiency, CO2 emission, water use, waste water quality or air pollution makes the industry seek better technology to combine economic with ecological benefits while complying with the law.
- ✓ Better environmental performance in production also starts to be more and more rewarded in the marketplace by increasing consumer interest in more sustainable textile products.

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# Ecological production in the textile sector

### Focus on theme n.3 Circular economy and resource efficiency

In order to follow this trend, the textile and clothing industry pursues incremental as well as radical innovation approaches.

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# Ecological production in the textile sector

### Focus on theme n.3 Circular economy and resource efficiency

#### Incremental approaches

- regular production technology upgrade;
- employment of better monitoring and control systems;
- use of energy- saving or energy recovery installations;
- water or chemical re-use systems;
- better waste water treatment facilities;



## Lecture 2.1 Environmental impact of T&C sector

# Ecological production in the textile sector

### Focus on theme n.3 Circular economy and resource efficiency

#### Radical innovation approaches

- the move from wet to dry textile processing replacing conventional dyeing;
- printing or finishing by digital printing;
- dyeing with supercritical CO<sub>2</sub>, plasma, laser or coating processes.
- Also material waste can be radically reduced by move from cut-and-sew assembly to seamless manufacturing for instance in knitwear or direct joint-free 3D production of technical textile or composite parts.

## The partners



Project Coordinator  
UPC - Universitat Politècnica de Catalunya  
**Spain**



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