

# Current State of Textile Recycling

## UNIDO Circular Economy Conference

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Bureau of  
International  
Recycling



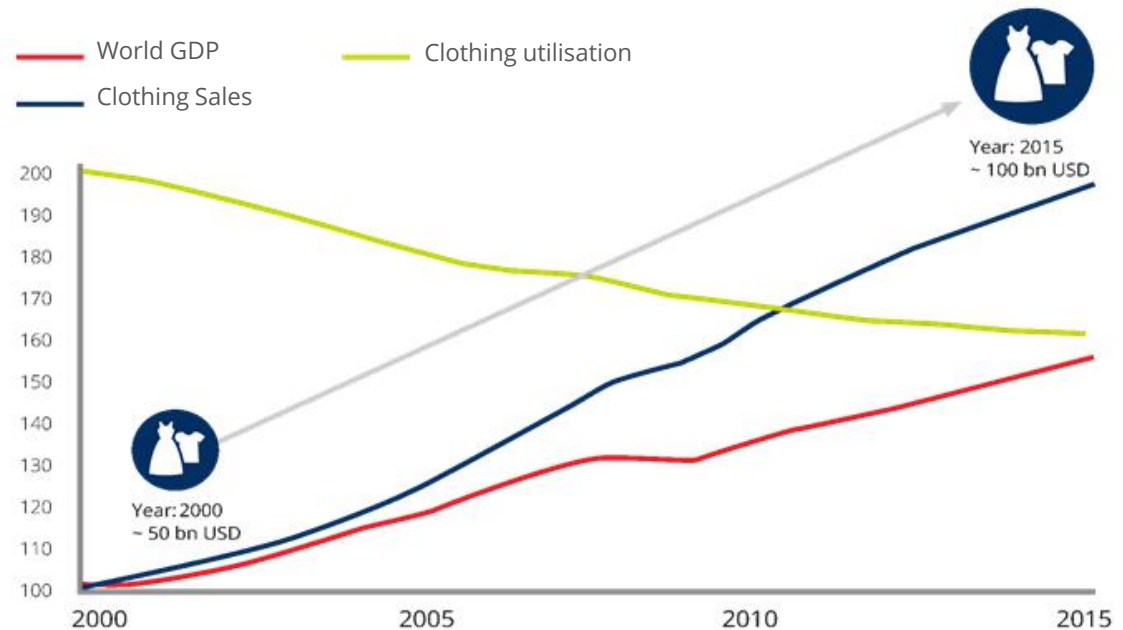
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# The textile industry follows a linear model

- Lifecycle ends at the consumer end of use stage
- Currently textiles are collected in developed countries for exported to emerging and developing countries for re-use as second hand clothing
- Recycling is limited mainly to downcycling like the production of wipers for industrial use and shredding materials
- Only very limited high value open or closed loop recycling processes, e.g. for cashmere and wool products are economically viable
- Professional collection needs to be financed by re-use “2<sup>nd</sup>-hand” fraction. No contribution by industry or municipalities/states (except France)
- Policy should be implemented to encourage collection, sorting and recycling

# While supply of new textiles increases faster than world GDP

- Sales of textiles have nearly doubled over the last 15 years (in USD)
- Utilisation has decreased by 1/3
- More than 75% of textiles go to landfill or incineration after first or second use



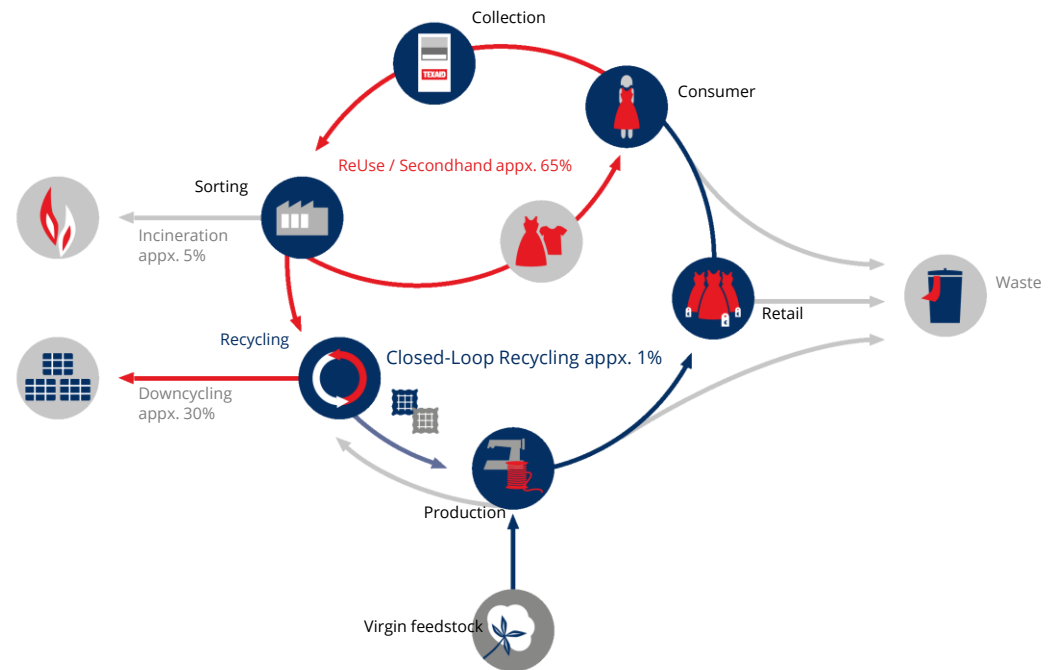
Source: Euromonitor International Apparel & Footwear 2016 Edition (volume sales trends 2005-2015); World Bank, World Development indicators – GD (2017)

# Having a substantial impact on the environment and high social cost

- 27'000 l of water consumed in the production of 1 kg cotton
- Around 25% of insecticides and 10% pesticides utilized in textile industry
- High pollution of rivers due to chemical discharge of sewage (e.g. from dyeing processes) without purification
- Labour conditions in the manufacturing site is still difficult; discussion on minimum living wages in developing countries

# Less than 1% of collected textiles are recycled in a closed loop system

- Around 65% of textiles collected by TEXAID in Germany and Switzerland are reused as 2<sup>nd</sup> hand textile
- Only around 1% can be reused in an open-/ closed loop scenario



# Main problem for recyclability is the large variety of materials used

- Materials used in textile production are very heterogenous
- Increasing mixed fibres on garments (e.g. polyester and cotton, cotton and elastane, wool and acryl)
- Accurate material composition needed in garment labels in standardized way. Problem: Garments often received with label removed by consumer
- Extensive number of trims added, such as buttons, zips etc.
- Use of chemicals in production process unspecified

# Technologies not yet mature enough for large scale high value recycling

	Mechanical Recycling	Chemical Recycling
Methods	Shredding of material to regain fibre Spinning of fibre to produce fabric	Dissolving of fabric with use of agent chemicals Extrusion method to create fibre
Strengths	Blends can be processed in mechanical fibre recycling processes	Return fibres to virgin quality
Weaknesses	Often results in inferior quality in comparison to virgin materials	Not yet technologically or economically mature

# Demands on policy makers and industry

- Mandatory separate collection of used textiles as required in current draft of EU Waste Framework Directive -> needs to be financed
- Exemption of recycled raw materials from REACH and comparable legislation
- Increased use of recycled raw materials by textile industry
- Funding and support for R&D in textile recycling and the development of new business models
- Reduction of non-tariff trade barriers for the export/import of used textiles and recycled raw materials



# Contact Information



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YOUR ATTENTION**

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