

# Sustainable fashion: Textiles

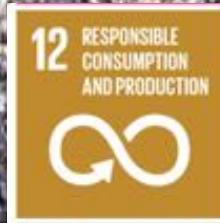
## Sustainability issues and development goals



Slave Labour  
Work unsafe Conditions



Non minimum wage



Fast- fashion and  
promotion of excess  
consumption



Excessive carbon  
emissions



Fresh water use and  
contamination of water



Land clearance and  
pollution

## Today's Picture

- ~40% of material used is cotton (less than 1% is organic) ~58% is synthetic ~2% is other natural fibres
- Cotton takes up 2.5 % cultivable land but uses 16% of insecticide burden (6% pesticide)
- Synthetic materials are made from petroleum and use up to 3x the energy compared to natural fibres- the production uses much less water however contributes to contamination of water through waste and ~33% of plastic in the ocean is thought to come from microplastics from clothes
- The fashion industry is the largest polluter of fresh water

## Natural textile comparison

Type	Name	Land use (Av Yield)	Water Use	Chemical use	Durability (lifetime)	Extra
Natural	<b>Organic Cotton</b>	700kg/ha	3000 L/kg	Still uses copper and copper salts (considered organic)	3000 bends	
	<b>Linen (Flax)</b>	1500kg/ha	500L/kg	Naturally pest resistant	3x stronger than cotton	Naturally antimicrobial Wicking of moisture (requires less washing)
	<b>Hemp</b>	Up to 3000kg/ha	300L/kg	Naturally pest resistant	3x stronger than cotton	Naturally antimicrobial Wicking of moisture
	<b>Wool</b>	Varies- land use is high	140L/kg	Some used on sheep and some used for cleaning process	Most durable	Insulation factor
Semi synthetic <small>(Natural fibres with extensive processing usually with chemicals )</small>	<b>Lyocell (Tencel)</b> From wood pulp-mainly Euclyptus	Up to 7000kg/ha	Naturally grown	Chemicals used (NMMO) in a closed loop process (99%)- reused and not much waste	2x stronger than cotton	Naturally antimicrobial Wicking of moisture
	<b>Bamboo (Rayon)</b>	Up to 20000/ha	Naturally grown in areas with high rainfall	Naturally pest resistant Some closed loop production	Similar strength to cotton	Naturally antimicrobial Wrinkle resistant when hung

## Conclusions

- Tencel is the most sustainable natural material followed by bamboo (if closed loop production is used) hemp and linen with organic cotton being the least sustainable.