

## Energy & Water Use

Energy consumption and water usage in the textile industry are extremely high and occur at each stage of the lifecycle of textiles – at the production stage, in the use phase, where consumers use and care for textiles and garments and at the end stage, which covers either disposal and/or re use of the materials.

In regards to energy use, different fibres will have varying energy impacts depending on the raw materials used in their production. Polyester is made from non-renewable petroleum and requires huge energy inputs to produce the fibre. Over 70% of the total energy used for a polyester garment occurs at this production phase. However, for cotton most of the energy impacts occur in the use phase, when the consumer is washing, drying and ironing the garment.

The main effects of this energy use is the emission of greenhouse gases, which are causing global warming. Like other industries, the textile and garment industry is beginning to implement strategies to control or reduce their carbon emissions and tools such as Lifecycle Assessment (LCA) are used to measure their environmental impacts.

In regards to water use, the impacts include the over-use of water and the release of chemical pollution in waste water. Again, the impacts vary according to the fibre type. Cotton is one of the most water-intensive agricultural crops whereas bamboo, a regenerated cellulose fibre, uses very little water to grow.

At the printing stage, technologies such as digital printing are more efficient in water use than conventional screen printing. At the dyeing stage, exhaust dyeing is one efficient technique or there are new technologies which use air to help the dye penetrate the fibre and uses no water at all.

## Facts

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- In modern intensive cotton agriculture, between 20, 000 – 40, 000 litres of water are used to grow each kilogram of cotton. (Black, *S Eco Chic*, 2008)
- Approximately 70 million tonnes of water is wasted annually in the UK textiles industry. (*Well Dressed: the present and future sustainability of clothing and textiles in the UK* (2006) University of Cambridge Institute for Manufacturing <http://www.ifm.eng.cam.ac.uk/sustainability>)
- It takes 132 million metric tons of coal to produce the 60 billion kg of textiles produced each year. One metric ton of coal costs US\$130. If we cut the textiles production by just 30%, we could save US\$5.1 billion. (<http://www.textileworld.com> )

## Key Organizations

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### The Carbon Trust –

<http://www.carbontrust.co.uk/>

The Carbon Trust's mission is to accelerate the move to a low carbon economy and develop commercial low carbon technologies for the future.

### Defra Clothing Roadmap –

<http://www.defra.gov.uk/publications/files/pb13461-clothing-actionplan-110518.pdf>

This government department are developing a strategy for a sustainable UK textile and clothing industry with particular emphasis on reducing carbon emissions and water usage.

## Reading Materials

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Fletcher, K. (2008) 'Use Matters' in *Sustainable Fashion & Textiles: Design Journeys*, Earthscan: UK

Slater, K. (2003) *Environmental Impacts of Textiles: production, processes and protection*, Woodhead: UK

## **Projects of Interest**

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### **Becky Earley – <http://www.beckyearley.com>**

Earley has developed an exhaust printing technique onto second-hand polyester clothing which uses little water or chemical pollution.

### **Luxury Redefined –**

<http://www.luxuryredefined.co.uk/>

A two year project to develop the most ethical and sustainable tshirt possible. It was a collaboration between Better Thinking, an ethical brand consultancy and John Smedley knitwear.

## **Companies and Designers**

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### **Earth Positive clothing -**

<http://www.continentalclothing.com/>

Continental Clothing (wholesale company who produce cotton tshirts for corporate groups) have produced a range of low-carbon and environmentally friendly cotton tshirts. The Carbon Trust worked with them to do a lifecycle assessment on the product and are trialling their carbon reduction labelling scheme.

### **Tshirt & Sons –**

<http://www.tshirtandsons.co.uk/>

The only Soil Association certified screen print company in the UK. They have done a 'carbon footprint' analysis of their whole printing process.