



# CLEAN and green?

**Kate Fletcher** of TEN examines the environmental implications of laundering and asks: are designers addressing the issue of creating clean fabrics and clothes?

**P**ARTY frocks for the new millennium – what will you be wearing? A little black number made from organically grown fibre or one you never have to wash? Evidence suggests that the most significant environmental impacts associated with the clothes we wear all arise from the use stage of the lifecycle (see figure 1), meaning that it is here (use) that should be our chief concern. Yet practical examples of textile designers getting to grips with cleanliness, hygiene and the environmental consequences of laundering are extremely limited. It seems instead that design-environment attention has become sidetracked and is running at tangents to the big environmental issues in the textile sector; in the case of clothing this is reducing the impact of consumer laundering.

It is fairly safe to say that the environmental implications of consumer behaviour are not just under-represented in textiles and in design more generally, but also in other subject areas. There is, for example, no shared definition between subjects of terms such as 'consumer' and 'consumption' and therefore no common point from which to initiate a debate. Yet the fact remains that consumer behaviour

critically influences the environmental impact of many of the outputs of design, and in order to achieve a good environmental result (the objective of every ecodesign), a focus on human choices and actions needs to be brought centre stage.

In the lifecycle of textiles and clothing, the use phase has been traditionally the concern of a set of discrete industries, namely product design, the white goods sector and detergent manufacturers. As a consequence, the design of 'environmentally

### per centage of entire lifecycle energy consumption attributed to the use phase

cotton	73%
50/50 cotton/polyester blend	66%
polyester	82%

### production use & care disposal

clothing	x	xxx	x
furnishing fabrics	xx	x	x
household textiles	x	xxx	x
carpets	xx	x	xxx
technical textiles	xx	x	xxx

▲  
**Figure 2**

**Relative impact of textile products throughout life**

**key:**  
x = small relative impact  
xx = average relative impact  
xxx = large relative impact

friendly' garments and 'environmentally friendly' systems of laundering those same garments has developed in isolation.

In contrast, a new focus on use (or consumer care) would support ideas of shared responsibility for material upkeep and associated environmental impact generation between those who make the fabric and those who facilitate its use. This would mean that the focus of both of these distinct groups would be the design of clean fabrics and clothes. Simple examples of this could include specifying particular shades which make soiling less evident, designing with fabrics which wash well on cool temperatures and developing fabric structures which dry quickly.

For textiles with a high environmental impact in use (please note, this is not all textile products – see figure 2) there are a number of options open to textile designers. Firstly, they can affect how frequently and for how long the product is used, or alternatively, attempt to reduce the impact of consumer care. Thus future design directions would perhaps include investigation of multifunctional clothes; shared clothes; and leased clothes among other issues. Interestingly however, while such strategies engage with how efficiently production resources are used (one garment meets many people's needs); they do little to influence the efficiency of use (the garment is still washed as frequently). In other words, making a garment multifunctional, or sharing it with the family next door does not

◀  
**Figure 1**

**Percentage of entire lifecycle energy consumption attributed to consumer use for garments made of various fibre types**

address impacts arising out of laundering.

So how can textile designers begin to tackle issues surrounding the impact of consumer use? One key way is to engage with consumer perceptions of cleanliness. A modification in society's definition of 'clean' has major implications for consumer washing behaviour and associated environmental impact.

Standards of cleanliness, while originally motivated by disease prevention, are now linked to cultural values such as 'acceptance' and 'happiness' and are driven to ever higher levels by competing individuals. Thus keeping clean has become a (imposed) need and one legitimised by the marketing and product world built up around a culture of 'whiter than white'. Consequently it is difficult to influence. This said, any small change in perceptions of cleanliness are likely to bring far-reaching environmental benefits.

Other strategies for reducing the impact of consumer use may involve designing garments that are more resistant to soiling and odour. Stain-blocking coatings form a barrier around the fibres, giving stain and soil repellency and deodorising fibres or layers act to control bacterial growth on the fibre surface. Such developments would bring environmental benefit if their application translated into less frequent washing. However, with current laundering patterns, in which it has been shown that consumers rarely wash clothes to remove dirt, few benefits are likely to be gained. As it is only when the removal of dirt is the principal motive for laundering, and then only when laundering is delayed until the dirt shows, that coatings begin to have an effect on washing frequency.

Studies of laundering behaviour reveal that different fibre types are

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