

January 25, 2007

Can Polyester Save the World?

By [ELISABETH ROSENTHAL](#)

WOKING, England

JOSEPHINE COPELAND and her 20-year-old daughter, Jo Jo, visited Primark at the Peacock Center mall here, in the London suburbs, to buy presents for friends, but ended up loaded with clothes for themselves: boots, a cardigan, a festive blouse, and a long silver coat with faux fur trim, which cost £12 but looks like a million bucks. “If it falls apart, you just toss it away!” said Jo Jo, proudly wearing her purchase.

Environmentally, that is more and more of a problem.

With rainbow piles of sweaters and T-shirts that often cost less than a sandwich, stores like Primark are leaders in the quick-growing “fast fashion” industry, selling cheap garments that can be used and discarded without a second thought. Consumers, especially teenagers, love the concept, pioneered also by stores like H&M internationally and by Old Navy and Target in the United States, since it allows them to shift styles with speed on a low budget.

But clothes — and fast clothes in particular — are a large and worsening source of the carbon emissions that contribute to [global warming](#), because of how they are both produced and cared for, concludes a new report from researchers at [Cambridge University](#) titled “Well Dressed?”

The global textile industry must become eco-conscious, the report concludes. It explores how to develop a more “sustainable clothing” industry — a seeming oxymoron in a world where fashions change every few months.

“Hmmm,” said Sally Neild, 44, dressed in casual chic, in jeans and boots, as she pondered such alien concepts, shopping bags in hand. “People now think a lot about green travel and green food. But I think we are a long way from there in terms of clothes. People are mad about those stores.”

It is hard to imagine how customers who rush after trends, or the stores that serve them, will respond to the report’s suggestions: that people lease clothes and return them at the end of a month or a season, so the garments can be lent again to someone else — like library books — and that they buy more expensive and durable clothing that can be worn for years.

In terms of care, the report highlights the benefits of synthetic fabrics that require less hot water to wash and less ironing. It suggests that consumers air-dry clothes and throw away their tumble dryers, which

require huge amounts of energy.

But some big retailers are starting to explore their options. “Our research shows that customers are getting very concerned about environmental issues, and we don’t want to get caught between the eyes,” said Mike Barry, head of corporate social responsibility at Marks & Spencer, one of Britain’s largest retailers, which helped pay for the Cambridge study. “It’s a trend that we know won’t go away after a season, like a poncho.”

Customers “will ask ‘what are you doing?’” Mr. Barry said, noting that 70 percent of Britons shop at his chain. “So we’re doing a lot of thinking about what a sustainable clothing industry could look like in five years.”

Consumers spend more than \$1 trillion a year on clothing and textiles, an estimated one-third of that in Western Europe, another third in North America, and about a quarter in Asia. In many places, cheap, readily disposable clothes have displaced hand-me-downs as the mainstay of dressing.

“My mother had the same wardrobe her entire life,” Ms. Neild said. “For my daughter, styles change every six months and you need to keep up.”

As a result, women’s clothing sales in Britain rose by 21 percent between 2001 and 2005 alone to about £24 billion (\$47.6 billion), spurred by lower prices, according to the Cambridge report.

And while many people have grown accustomed to recycling cans, bottles and newspapers, used clothes are generally thrown away. “In a wealthy society, clothing and textiles are bought as much for fashion as for function,” the report says, and that means that clothes are replaced “before the end of their natural life.”

Dr. Julian Allwood, who led a team of environmental researchers in conducting the report, noted in an interview that it is now easier for British consumers to toss unwanted clothes than to take them to a recycling center, and easier to throw clothes into the hamper for a quick machine wash and dry than to sponge off stains.

He hopes his report will educate shoppers about the costs to the environment, so that they change their behavior.

There are many examples of how changing consumer priorities have forced even the most staid retailers to alter the way they do business.

Last year Marks & Spencer — Britain’s mainstay for products like underwear and shortbread — decided to go organic in its food business; it now sells only fair-trade coffee and teas, for example. Many executives regarded the shift as a foolish and risky decision, but the store found that sales jumped 12 percent. The store learned a lesson that executives think will apply to clothes.

“Morally, we know more sustainable clothing is the right thing to do, but we are more and more

convinced that commercially it is the right thing as well,” Mr. Barry said. In fact, marketing the “green” value of clothing, even if costs a bit more, may provide an advantage over competitors.

Part of the problem is that neither manufacturers nor customers understand much about how and when clothing purchases degrade the environment, since these can occur anywhere from the harvest of cotton or the manufacture of synthetic fibers to how — and how often — the garment must be washed.

“We’ve got fantastic standards when it comes to food, but it is all brand-new when it comes to clothes,” Mr. Barry admitted. “We have a lot to learn.”

In their efforts to buy green, customers tend to focus on packaging and chemicals, issues that do not factor in with clothing. Likewise, they purchase “natural” fibers like cotton, believing they are good for the environment.

But that is not always the case: while so-called organic cotton is exemplary in the way it avoids pesticides, cotton garments squander energy because they must be washed frequently at high temperatures, and generally require tumble-drying and ironing. Sixty percent of the carbon emissions generated by a simple cotton T-shirt comes from the 25 washes and machine dryings it will require, the Cambridge study found.

A polyester blouse, by contrast, takes more energy to make, since synthetic fabric comes from materials like wood and oil. But upkeep is far more fuel-efficient, since polyester cleans more easily and dries faster.

Over a lifetime, a polyester blouse uses less energy than a cotton T-shirt.

One way to change the balance would be to develop technology to treat cotton so that it did not absorb odors so readily.

Also, Dr. Allwood said that “reducing washing temperature has a huge impact,” speaking of a significant drop from about 122 Fahrenheit to 105. Even better, he said, would be to drop washing temperature below normal body temperatures, but that would require changes in washing machines and detergents.

The report suggests that retailers could begin to lease clothes for a season (just as wedding stores rent tuxedos) or buy back old clothes from customers at a discount, for recycling.

But experiments along these lines have faltered. A decade ago, Hanna Andersson, an eco-conscious American clothing company, tried offering mail-order customers 20 percent credit toward new purchases if they sent back their used garments. This “hannadowns” program was canceled after two years.

People hope “we’ll find new sources of energy, so we won’t really have to change much,” Dr. Allwood said. “But that is extremely unlikely.”

To cut back the use of carbons and make fashion truly sustainable, shoppers will have “to own less, to have less stuff,” Dr. Allwood said. “And that is a very hard sell.”

And so Marks & Spencer is thinking about whether its customers will be willing to change their buying habits, to pay more for less-fashionable but “sustainable” garments. After all, consumers have shown a willingness to pay more for clothes not made in sweatshops, and some are unwilling to buy diamonds because of forced labor in African mines.

On a recent day outside Marks & Spencer on Guildford High Street, where everyone was loaded with shopping bags, Audrey Mammana, who is 45, said she was not “a throw-away person” and would be happy to lease high-end clothing for a season. She would also be willing to repair old clothes to extend their use, although fewer shops perform this task.

But, she added: “If you cut out tumble-drying, I think you’d lose me. I couldn’t do without that.”

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How 'Green' Is Your T-Shirt?

Cotton is cheaper and takes less energy to manufacture than synthetic fibers. But over its lifetime, a cotton T-shirt requires more than twice the energy than is necessary to manufacture and maintain a polyester blouse. The main difference: polyester garments can be washed at a lower temperature, can hang dry and need no ironing.

Energy used over the lifetime of the garment, in kilowatt hours.*



Use assumes 25 washes per garment. The cotton T-shirt is washed at 140 degrees Fahrenheit, followed by tumble-drying and ironing. The polyester blouse is washed at 104 degrees Fahrenheit, hung dry and not ironed.

*The energy of one kilowatt hour will operate a 40-watt lightbulb for a full day or a 19-inch color television for about four hours.

Source: University of Cambridge Institute for Manufacturing

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