

# Upcycling evolves from recycling

LONDON

Goal is to use materials again and again to keep them out of landfills

BY BETH GARDINER

From "cradle-to-cradle" recycling to high-end information technology, companies are making money by cutting waste and saving resources

Windproof jackets sewn from pieces of an old hot air balloon, bags made from airplane seat covers and totes fashioned from mail carriers' retired rain jackets. A London company is turning cast-off textiles into new products, part of a trend called upcycling which, its advocates say, offers big environmental benefits.

Unlike traditional recycling, in which materials like plastic and paper are gradually degraded and can be reused only a limited number of times, upcycling turns waste into products of greater value. That offers hope for achieving the biggest goal of environmentally minded design, using materials again and again to keep them out of landfills. Supporters call it "closing the loop."

Instead of seeing old uniforms or other fabric as garbage, companies should look at them as a resource to be mined, said Jamie Burdett, a co-owner of Worn Again, the London company behind the bags made from Royal Mail jackets and Virgin Group balloons.

"It's trying to change that mind-set, so that people move from a disposable mind-set into a constant reuse mind-set," he said.

This is part of a broader effort to reduce waste by planning for a product's potential recycling or reuse at the end of its life before it is even made, a process known as "designing out waste." A small but growing number of companies have begun thinking this way, and they say it is essential for wealthy consumption-based societies that must begin to conserve resources, cut greenhouse gas emissions and reduce landfill. Wasting less also improves profit, they say.

The American designer William McDonough and a German chemist, Michael Braungart, helped to shape the philosophy with their 2002 book "Cradle to Cradle," which envisioned an endless loop of resource reuse, in which all products are designed to be eventually dismantled, and their component parts either reused or composted.

The challenge is to get manufacturers and consumers to shift from an attitude of "it's going to landfill, I don't have to think of it," to "I really want to get those

materials back because they're valuable," said Bridgett Luther, president of the Cradle to Cradle Products Innovation Institute in San Francisco, which Mr. McDonough and Dr. Braungart established to train consultants to help companies put their idea into practice.

The process starts with removing harmful chemicals, so that materials can be salvaged or returned to nature without fear of leaching toxins. With the backing of the California governor, Arnold Schwarzenegger, the institute is helping to implement a 2008 California law aiming to phase hazardous chemicals out of products. Mr. Schwarzenegger has called for the establishment of a cradle-to-cradle economy by 2050.

"It's starting to enter the mainstream," said Ms. Luther, a former director of the California Department of Conservation. "We have lots of people calling us and saying 'I want to do this.'"

Interface, a commercial carpet manufacturer, is working toward closing its resource loop as part of an effort to bring its environmental impact to zero by 2020. The company, based in Atlanta, takes carpet tiles back when customers are through with them and either reuses components like backing or recycles the material into new product, said Lindsey K. Parnell, president for European and Middle Eastern operations of the company's modular flooring division, InterfaceFLOR.

Among other innovations, an ultrasonic cutting machine and a special sensor to prevent creasing have reduced the amount of carpet wasted during production, Mr. Parnell added.

The company gets employees involved in reducing waste, sometimes by offering them bonuses. "Once you mobilize the entire work force, you get these hundreds of thousands of little improvements that add up to something significant," he said.

Tackling waste is good business, Mr. Parnell said. While cutting the amount of waste it sent to landfills by 80 percent and its greenhouse gas emissions by 44 percent, the company, which grosses about \$1 billion a year, has saved \$433 million since 1996, he said.

Such thinking has gained ground in the business world, but while many

companies want to operate more sustainably, they often do not know how, said Gail Whiteman, professor of sustainability and climate change at the Rotterdam School of Management.

Setting targets for managers to reduce waste and energy use could make a big difference, she said. "I see a fundamentally, tremendously large shift since the 1980s," she said, adding that preventing waste is no longer "seen as a weird thing or a niche thing."

"The point is, we have to try because it's not like we really have another alternative. How long can we run on empty" before resources run out, she asked. "Probably another 10, 15 years, but some of the minerals and metals will be gone by that time," and landfill crunches will be acute.

More important, environmentalists argue, are the greenhouse gases created by producing and transporting even more plentiful raw materials, like cotton, industrial metals, oil, and thousands of different chemicals.

For example, Ms. Luther, of the Cradle to Cradle institute said, "we should never be mining aluminum, because there's enough aluminum in the world if we just get it back."

Reducing packaging also helps. In Britain, supermarkets and suppliers working voluntarily with WRAP, a government-financed body, have eliminated 520,000 tons of material since 2006, said Andy Dawe, WRAP's head of retail programs. Bottles, for example, have been redesigned to use less glass, and, by giving customers incentives like loyalty card points to reuse bags, the sector has cut plastic shopping bag use by 41 percent since 2006.

Environmentalists say a bigger cultural and economic shift is needed, away from relentless consumption and shopping to a less resource-depleting approach. "To say this has to change, it's destroying our planet, it's destroying the lifestyles of our grandchildren, in a lot of the world and in America especially, that's hitting at people's core beliefs"

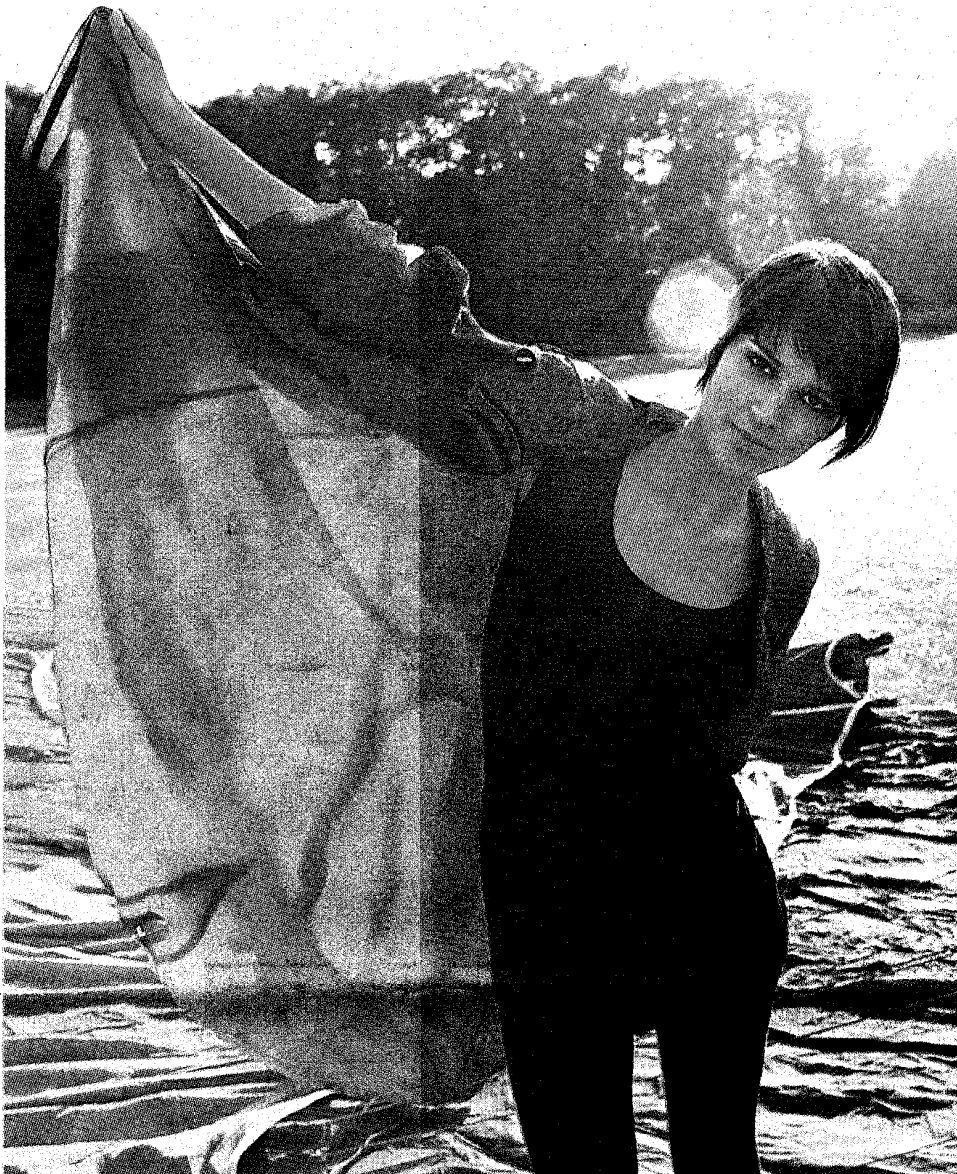


about their way of life, said Angus Middleton, of Renaissance Regeneration, a British environmental consulting firm.

But, Ms. Luther says, this shift can be achieved without reducing prosperity. If materials were reused endlessly and toxins eliminated, economic growth could contribute to the environment, instead of damaging it.

"If everything that was going into the ocean was food for fish" instead of dangerous pollution, and "if everything that went into the landfill was a big compost pile, think how amazing that would be," she said. "If you're growing in the right way, you're adding to the earth."

**Preventing waste is no longer "seen as a weird thing or a niche thing."**



**Worn Again, a London company, makes bags and jackets from used Virgin Group balloons and Royal Mail jackets.**



**Satchels being made from decommissioned uniforms worn by the staff of the Eurostar high-speed trains that link London, Paris and Brussels.**