

Trash into treasure

We make it, buy it, use it, throw it. The result? Diminishing natural resources and mountains of waste. But some are tackling the problem in ingenious ways. By **Jane Yettram**

CRISP PACKETS INTO... BIVVY BAGS

Ever dreamed about a crisp packet? Pen Huston has. She dreamed she was sleeping in one – a green one, in fact. And that dream led to a brilliant green idea – the Crisp Packet Project.

Pen, a volunteer for a homeless charity, knew that Brits bin billions of hard-to-recycle crisp packets every year. And her idea was to wash them, fuse them together with waste plastic wrapping, and turn them into bivvy bags. These could then be given to homeless people to put over their sleeping bags, keeping them dry and warm.

Pen's idea proved a huge success, so she and fellow volunteers in her home town of Hastings started making more and more of the bags. As Pen explains, 'Crisp packets are the perfect material because they are thick, waterproof, and the foil lining reflects body heat, keeping you warmer for longer.'

The project started in November 2019 and, just over a year later, Pen's idea has spread to other volunteer, non-profit groups across the UK and beyond – to Europe, the US and Australia. Pen's website (www.crisppacketproject.com) includes



Pen Huston in a bivvy bag

instructions on how to make the bags using just an iron, baking paper, a pair of scissors and a tape measure. And she has also branched out into survival sheets – great for sitting on or sheltering from the rain – as well as ponchos, pillows and more. It's ingenious. As Pen says: 'It's amazing that something as simple as a crisp packet can help save lives, help the environment and bring people together.'

OLD CLOTHES INTO... NEW FIBRES

In the UK, we buy more clothing per person than in any other European country – and each year we throw away 300,000 tonnes, with 20% dumped in landfill and 80% being burned. Worldwide, one bin lorry of textiles is dumped or incinerated every second, and just 1% of used clothing gets recycled.

Incredibly, Prato, a small town in Italy, has been recycling fabric for almost 200 years – and now processes 15% of all recycled clothing in the world. Hundreds of businesses are dedicated to the task, fulfilling different parts of the procedure. One of them, Comistra,



is a family firm specialising in wool recycling. Owned by brother and sister Fabrizio and Cinzia Tesi, it was founded 70 years ago by their father, Roland. As they say: 'The culture of reuse and respect for resources is part of who we are, our

DNA. It is not merely the result of a momentary trend.'

At Comistra, clothing arrives from all over the world, and is sorted into materials and then colours. It is purified, shredded, washed, dried, spun and woven – and then bought by brands such as Armani and H&M, who are finally waking up to the fact that constantly churning out new clothes makes fashion the world's second-largest polluter after the oil industry.

As Fabrizio told the BBC: 'Many brands buy my product because they know that reusing resources is going to save the planet.'

ROTTING FRUIT AND VEG INTO... SOLAR POWER GENERATION

It was on a cloudy day that engineering student Carvey Ehren Maigue from Mapúa University in the Philippines had his brainwave. 'It was overcast and rainy, and my glasses, which react to sunlight, darkened,' he says. Clearly, UV light from the sun was causing the change, even if he couldn't see sunlight. So what if invisible UV light could be harvested and converted to solar energy?

Because traditional solar panels capture only visible light, they don't work when the sun's not shining. But Carvey developed a material combining a resin with luminescent particles that capture UV and convert it to visible light. Attach this material to buildings and you can capture the UV light scattered by clouds or reflected off pavements and other buildings.

However, Carvey's idea went further – he came up with a technique to create those particles from waste food and veg. 'We upcycle the crops of farmers

hit by natural disasters, such as typhoons, which happen to be an effect of climate change,' he says.

Carvey's innovation won him the 2020 James Dyson Sustainability Award and he is now working on applying the material to the whole outside of a building – creating a vertical, 360-degree, year-round solar energy farm.

Use this on more and more buildings, and the amount of clean electricity generated would be vast. Plus there's potential to take this concept – called AuREUS – further. 'AuREUS could become part of our clothes, our cars, buildings and our houses,' says Carvey, who is passionate about helping everyone become part of the green energy revolution.

What if invisible UV light could be converted to solar energy?

Waste Age, an exhibition about transforming waste into new resources, opens in October at London's Design Museum.



Carvey is using waste food and veg to create particles that capture UV light



Coral at a collection tube on Brighton Seafront

FISHING LINE INTO... BUILDING MATERIALS

Plastics in our seas have a devastating effect, trapping and smothering wildlife. And abandoned fishing gear is particularly damaging. A 2019 report from Greenpeace revealed that 640,000 tonnes of 'ghost gear' ends up in the ocean every year, and carries on catching and killing wildlife. In 2018, for example, 300 sea turtles were found dead in one abandoned net off the Mexican coast. But wildlife is dying every day and everywhere. And every action can help change this.

In January, Brighton City Council became the first local authority to introduce seafront collection tubes so that anyone finding washed-up fishing gear has a place to deposit it.

The tubes are part of the Anglers National Line Recycling Scheme, which was founded by volunteer-led organisation Local Independent Sea Anglers. The scheme has grown from a few tackle shops in Sussex to national coverage involving over 320 tackle shops and 175 fishery locations.

'Industrial fishing line and net is one of the most frequently reported items of ocean pollution found washed up on Brighton Seafront,' says Coral Evans of Leave No Trace Brighton, which promotes responsible rubbish disposal. 'These line and net recycling deposit points offer an ocean pollution solution, with a focus on a circular economy.'

The collected net and line is transformed into boards for joinery, shopfitting, furniture making and construction by Leeds-based company ReWorked. Its director, Steve Carrie, says: 'We can no longer turn a blind eye to the environmental damage fishing is having on ocean ecosystems. It is catastrophic.'