Image: © Karthik S for Unsplash

Finding value in waste

On the return of the Future Fabrics Expo, a programme rich in diverse thinking coincided with the usual fabric displays. It was there that one panel discussion explored the vast potential of waste agriculture.

Chris Remington reports.

On the event's opening day, Valerie Langer, a fibre solutions specialist at environmental non-profit Canopy; Jothi Kanayalal, an innovation associate at sustainability initiative Fashion for Good; and Alexandra Lanot, a senior research associate at the University of York – who's also been instrumental in supporting the UK's new Textile Circularity Centre – came together to provide their insight into global agricultural waste levels and the opportunities industries, such as textiles, have for unlocking their value.

Notably, Langer and Kanayalal contributed to the Laudes Foundation's *Spinning Future Threads* report last year, which went a long way to contextualise the scale of agricultural waste and the problems it can pose if not managed correctly.

In 2017, it was estimated that up to 92 million tonnes of agricultural waste is burned each year resulting in approximately 149 million tonnes of CO_2.

> "We are burning it, why can't we use it?"
>
> *Jothi Kanayalal, innovation associate at Fashion for Good*

Langer highlighted that, in India, the fact that straw waste is **largely incinerated** can have adverse environmental and health implications.

"There are thresholds beyond which everything becomes unsustainable. You can remove too much straw from a farm and that damages the soil, you can remove too much forest and that damages the habitat and then causes carbon emissions," she explained.

"Through *Spinning Future Threads*, we were looking at how we can go not just from one thing to the next but how do we utilise a waste material, amongst many other types of cellulose material, so that we can be more moderate on all of these systems.

She continued: "There are a few big systems in the world we need to think about: forests, oceans, soil, atmosphere and fresh water – everything we do in our lives depends on those being OK and right now we're not doing OK on any of them."

Kanayalal supported that conclusion with figures highlighting the industry's trajectory, on which waste levels will only continue to mount unless alternative solutions are backed sufficiently.

"If you look at the global textile industry, about 42 per cent of this industry is going to grow in the next decade. In 2019, we consumed 111 million tonnes of material and this is going to increase to 146 million tonnes in the next decade.

"You can imagine the amount of material that we're using, and the materials we're using are not from sustainable feedstocks, so we need to look at alternatives.

"In India, 40 per cent of what's cultivated is just rice and from that you get 600 million tonnes of rice husk residue, [there's also] 400 million tonnes of wheat husk residue. So much sugar cane, hemp, banana, pineapple – what do we do with all of this agricultural waste? We are burning it, why can't we use it?"

It's a question Fashion for Good is now actively looking to answer, having earlier this year launched its Untapped Agricultural Waste project.

Introduced with support from corporate partners Adidas, Bestseller, Vivobarefoot and Birla Cellulose, the onus within that framework is on scaling the promising solutions of

six burgeoning innovators: AltMat, Bananatex, Chlorohemp, Agraloop by Circular Systems, HempTex India and 9Fiber.

Birla Cellulose will develop and prepare these new materials for wider adoption in the fashion supply chain, while the brand partners will help with the testing and eventual scaling of them.

Bananatex and Circular Systems earlier this year founded the Fibral Material Alliance in a bid to build a network of likeminded innovators and promote their products.

Economy of scale

Giving new solutions and services the support they need to reach scale is no new concept. And fortunately for stakeholders in the UK, greater onus is now being placed on championing 'sustainable' fashion and innovative textiles.

On page 28 of this issue, we highlight how a new programme – led by the UK Fashion & Textile Association (UKFT), British Fashion Council (BFC) and Innovate UK – is looking to support the creation of a circular fashion economy across the country, with around £80 million in funding.

The birth of the Textile Circularity Centre in 2020 is another prime example. Lanot, of the University of York, is leading efforts at the £5.4 million state-of-the-art facility with the view to turning post-consumer textiles, crop residues and household waste into renewable materials for the sector to repeatedly utilise.

And whilst the centre has benefitted greatly from financing through the UK Research and Innovation (UKRI) investment framework – in a deal that will last until at least 2024 – Lanot is uncertain of what the long-term picture looks like.

"Scaling up is a big thing at the moment. When we move out of that [UKRI deal], it's very difficult because private funding might not [be available to] fund research. It's [difficult] when you're on the border because is 'scaling up' [just] commercial, or is it research [as well]?"

The use of capital and its availability was a consistent theme throughout the panel discussion, with Kanayalal pointing to the US$1 trillion valuation that Fashion for Good and the Apparel Impact Institute placed on decarbonising the fashion sector by 2050.

The organisations' report charted a trajectory to meet net-zero by 2050 and identified levers including using existing industry solutions, such as renewable energy, phasing out coal and adopting 'next generation' raw materials that it said would be crucial to the sector meeting the target.

"Of course, at the start, it isn't going to be an economically viable solution and that is where innovators really struggle," Kanayalal noted. "But if we want to overcome our bigger industrial challenges – land use, energy use – we need to invest in these innovations. That's the only way and we can only do that by collaborating."

> **"Every buyer needs to convince their company that's said 'we want to be sustainable' that it's going to cost a little more in the beginning**
>
> *Valerie Langer, fibre solutions specialist at Canopy*

Langer alluded to the need for government-level support around the world to truly facilitate the infrastructural shift required to unlock waste's potential at scale. Such backing would bring with it cross-sector collaboration uniting waste management companies right through to the brands and retailers which will be using the 'sustainable' waste-derived materials in their clothing.

"What needs to happen is every buyer needs to convince their company that's said 'we want to be sustainable' that it's going to cost a little more in the beginning because otherwise it'll fail," she said.

"You need to help those the first to market, support them so they can do R&D, then when it's refined the optimisation brings the price down and the economy of scale brings the price down. We all have to participate." ■

▼ Valerie Langer, Jothi Kanayalal and Alexandra Lanot with moderator Yasmin Jones-Henry of the *Financial Times*'

Image: © Future Fabrics Expo