Circularity by Design

Professor Kate Goldsworthy

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Following Kate's talk, members of the core FFN+ team participated in a lively discussion about circularity, fibres, their impacts in the environment and why this network is so important for shedding light on best practice.

The Role of Design

Rosie Hornbuckle kicked off the questions asking about the multifaceted role of design in this space. Kate was quick to point out that this is an ongoing question and the network can help to understand this further:

"There are as many disciplines in Design as there are outside: collaborating within Design is really important, for example working with data visualisation – cut through the complexity. I'm a maker and materials designer, and that's a different kind of design, but now we're working with AI designers, robotics and all sorts. Having design present in whatever part of the system you're using, not just limiting it to the construction of garments, but bringing them in at every stage always seems to be the best way."

Design-Science dialogue

Parik Goswami from University of Huddersfield came in with some ideas for how to change the structure of pineapple fibres in response to the Pinatex case study. This is a great demonstration of how valuable this dialogue between design and science can be because it allows science and design to respond to one anothers' questions and ideas – a fertile ground for cross-pollination and innovation opportunities. Kate mentioned that one of the main challenges has been in finding an alternative to polyurethane (PU) and Polylactic acid (PLA) in their products.

The discussion continued with a discussion of the challenges of mechanical recycled, which have many different scenarios, Kate made the brilliant observation that this is one reason why her approach has

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been to focus on specific product, recycling and production scenarios, moving between the product level and the systems level to understand where the opportunities lie. Material properties can be different in recycled materials, but that doesn't need to be a reason not to proceed, design which works with cascaded systems can help to find appropriate flows for materials, and asking 'stupid questions' to enable feasible systems to be realised.

Ecosystem disruption
Richard Thompson from University of Plymouth raised a question about how taking agricultural bi-products can have unintended impacts on the soils and carbon sequestration and fertility:

"Nature doesn't have 'waste'; let's be careful about how we use that term".

Kate agreed, commenting that these are questions that can be asked within the network, to work through those questions in relation to systems that are not possible within small and micro enterprise teams. Everything that is intensive is going to have impacts: we're solving a problem that is a solution to another problem.

Richard continued by saying that the trade of 'wastes' creates problems, as there can be an oversimplification:

"**We're not just trying to replace plastic with something else, we want to replace it with something better."**

Richard's research has found that that it is not only plastic fibres that are found in the oceans, regenerated cellulose fibres are also prevalent in the arctic and deep ocean environments and these can impacts wildlife.

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Kate gave the example of bamboo, where the process used to make it into new fibres can be very harmful in terms of the chemicals it uses to transform the cellulose.

The role of FFN+
A final reflection from Parik on the value of the network:

“These discussions are so valuable because what you say based on your research, sheds a light on my practice, on Kate’s practice and so on, and that is why this Network is useful.”

The important next step will be how to take these discussions forward in a concrete way within the Future Fibres Network+.

Curated and translated by Dr Rosie Hornbuckle, University of the Arts London