

“We need to shift from a product ownership mindset to a service ownership mindset”

Interview with Deepali Sinha Khetriwal on circular economies

What challenges do we face with regard to recycling climate technologies?

Climate technologies are seen as green technologies, but this assumption only lasts until they need to be recycled. Solar panels, batteries and so on are incredibly difficult to recycle. One of the challenges is actually to collect used items. We have done some work on off-the-grid solar products which are distributed across regions that are very difficult to access in the first place. They bring a lot of value to those communities and users. But at

“Solar panels are fused with layers of amazing materials sandwiched between glass. There is no way yet to recover these resources.”

the end of their lifecycle, it is a huge challenge to bring the panels back for recycling. There is no incentive mechanism, and there is no framework to pay for the costs of collecting and returning the solar panels. The second challenge is the recycling process itself, because it is not known yet how to best recycle them. Solar panels are fused with layers of amazing materials sandwiched between glass. There is no way yet to recover these resources. Another challenge is the issue of safety hazards. Lithium batteries are a very good example. They are very good in some ways, much better than lead-acid batteries, but nobody wants to recycle lithium ferrophosphate batteries, for example. There can be fire hazards when storing or recycling them, and there is a high chance they might just burst up in flames. There are several challenges, demonstrating that climate technologies are not a silver bullet.

How can we build a more circular and sustainable economy?

There is a lot of research going on in this field. But first of all, it is important to focus on the reduce, reuse, recycle approach. In addition, we have to reduce the number of products we really need.

One way to contribute to this idea is to expand the sharing economy. We see this already happening in the car sector.

With mobility services offered through mobile apps, people are owning fewer cars, for example. We should move from a product ownership model or mindset to a service ownership mindset. That way you use a product for its service, but don't need to own it. Philips has pioneered this idea. Instead of selling bulbs, they developed a programme where they sell light. That way, they have a continued business opportunity with a regular cash flow

“... we have to reduce the number of products we really need.”

instead of only selling one bulb at a time. Since they still own the product, incentives exist to make products better and last longer. These kinds of frameworks can support the creation of a circular economy. There is recycling at some point in the lifecycle, of course.

“Early in the value chain you can choose to create a more modular system to improve repairability.”

But even earlier in the value chain, especially in the design phase, you can already choose to create a more modular system, enabling you to upgrade the small parts when they break down instead of replacing the whole product. We have seen this

with phones – Fairphone is a good example. You can upgrade single parts, whether it is a battery, a camera or the speakers. It shows that there are ways to achieve a more sustainable and circular economy. I am quite positive and optimistic on this front.

Do you see any opportunities for developing countries to leapfrog to a circular economy?

“It is important to set up a framework ensuring there is financing available to collect and recycle broken products.”

I think a lot of countries are looking at that and are trying to build the kind of legislative frameworks that have been applied in other areas, as with e-waste. It is important to set up a framework ensuring there is financing available to collect and recycle broken products. Developing countries

are going in this direction: they are trying to put these frameworks in place right from the start. This is not only limited to electronics; it can be

Deepali Sinha Khetriwal



Deepali has over 16 years of international work experience having lived, studied, and worked in Asia, Europe, and the United States. She is an international expert on e-waste management and has published several papers in peer-reviewed journals on the topic.

At United Nations University, she was instrumental in setting up the capacity development activities of the StEP Initiative, a UN-supported forum on the e-waste problem. Currently based in Mumbai, she holds a PhD from the University of St. Gallen, Switzerland, where her thesis was on modelling for forecasting waste flows of end-of-life consumer durables.

implemented for all products where you have the opportunity to install a system to collect, recycle and create a circular economy chain. Supportive legislation can be an important step, instead of waiting for the problem to become so huge that you are pressured to find solutions.

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Phone +49 (0)228 959 25-0 | Fax -99
sef@sef-bonn.org | @sefbonn
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