



Dr. Henning Wilts

Director Division Circular Economy

Institute for Climate, Environment and Energy, Wuppertal, Germany

Global Resources, Environmental Impacts and Their Limits to Growth

According to latest data by UNEP's International Resource Panel, the total amount of materials extracted from global ecosystems for the very first time has exceeded 100 billion tons. It's therefore obvious that our current resource intensive patterns of production and consumption cannot be sustained on a physically limited globe.

Already in the 1970s the Club of Rome has warned about the "limits to growth" caused by scarcities for various raw materials and as a direct consequence also for the global food supply. Technical progress, improved efficiency and nowadays digitalization have expanded these boundaries, nevertheless they still exist and the negative impacts of our massive overconsumption of natural resources become more and more visible: the rapid loss of biodiversity, fresh water scarcities or climate change – they all go back to the over usage of complex ecosystem services.

In this context it is important to acknowledge that neither physical scarcities nor market mechanisms will lead to the rapid necessary reduction of raw material extraction – despite all policy efforts, most raw materials are as cheap as in the past and the available reserves have even increased for many of them. Nevertheless, the environmental impacts steadily increase: the amount of unused extraction increases if lower and lower ore grades are exploited and sensitive ecosystems like rain forests are destroyed for the exploitation of raw material deposits.

It is because of these environmental impacts that the idea of a circular economy, of keeping the value of products and materials at the end of their use phase becomes increasingly important – nevertheless this will require new policy frameworks – with e.g. recycling quota that actually consider recovery rates for raw materials – as well as cooperation of industries alongside the whole value chain. Resource efficient recycling will have to start with the design of products and at the same time require informed consumer choices that need to be aware of the environmental impacts of their purchases.