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3s3 Supply chain transition: managing tools and sustainability assessment of innovations

SCOPING THE ABILITY OF CIRCULAR ECONOMY POLICY OPTIONS FOR IMPROVING BIODIVERSITY

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Global biodiversity and the ecosystem services it provides are declining at unprecedented rates, threatening nature and human well-being. To bend the curve, increased efforts are needed, including radical changes in the way we consume and produce, according to the Intergovernmental Panel on Biodiversity and Ecosystems (IPBES). The Dutch government formulated the ambition to halve the ecological footprint of Dutch consumption by 2050. A transition to a circular economy (CE) is considered a means to bend the curve. However, without further research, the potential of circular economy to halve the Dutch ecological footprint and enhance biodiversity remains insufficiently substantiated. This study identifies knowledge gaps surrounding the relationship between circular economy, biodiversity, and the footprint family. It aims to map which knowledge is available and which knowledge is still required to make statements about the potential of circular economy measures to halve the Dutch ecological footprint. The study is carried out in two steps: (a) an initial scoping study on research gaps and knowledge questions surrounding the three research fields by analyzing EU and governmental policy documents and scientific papers, and (b) an in-depth systematic literature research, performed using the Elsevier Scopus database, aiming to formulate research questions for future studies. The first step of the study revealed that national and EU policies do mention, though not explicit, the relationship between CE and biodiversity – indicating a potential lack of knowledge and action perspective. The second step of the study showed that the entire set of footprint indicators – referred to as the footprint family – is essential for measuring the effects of CE on biodiversity – capturing both synergies and trade-offs of changes in resource use. Research on CE, footprints and biodiversity is currently mainly focused on the energy and food sectors. In contrast, sectors like mining, manufacturing and construction are the focus of many circular economy policies. This study shows that in order to evaluate the link between circular economy and biodiversity with the help of footprint indicators, there is a need for a broader approach that goes beyond the goal of halving the Dutch ecological footprint alone. The footprint family indicators are linked, and an integral approach is needed.

Keywords: Biodiversity, Circular economy, footprint family, policy, Netherlands