

Mapping the biological feedstock streams: A methodological approach for Material Flow Analysis to support the transition to a Circular Bioeconomy

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The demand for biomass is expanding worldwide. The Bioeconomy Strategy and Green Deal priorities, along with Europe's green recovery may have a significant impact on biomass supply, demand, and flows, which must be balanced against environmental, social, and economic sustainability in Europe and globally. Besides, the quantification and timely reporting of biomass flows are crucial for the monitoring of such strategies. However, the quantification of the biological feedstock flows, their type and origin definition, the way they are used, as well as the remaining amounts available, are challenging. Within this framework, the present work focuses on a comprehensive methodology for a bio-based material flow analysis (MFA), which supports the quantification of a potential feedstock for the bio-based sectors by measuring the input-output materials and examining the pathways of each material flow within the whole system. The core outcomes will provide instructions for producing a generalised Sankey diagram, shedding light on the categorisation of biological feedstock resources and their potential uses and applications in a circular bioeconomy setting, also enabling the comparison of biomass flows between different regions and countries.