

## SYSTEM LEVEL LIFE CYCLE ASSESSMENT MODELS FOR EU AND NATIONAL WASTE MANAGEMENT

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Global production and consumption has increased dramatically in recent decades and waste is currently being generated faster than any other environmental pollutant (Hoorweg et al., 2013). This has led world leaders to embrace the concept of a circular economy, where the 'end-of-life' concept is replaced with 'restoration' (Ellen MacArthur Foundation, 2020). The EU has thus, established a range of regulatory targets that prioritize the recycling and reuse of resources over incineration and landfill (European Commission, ND). This will inevitably lead to a wide range of new technological developments and product design requirements etc., to accommodate these targets. However, if waste is mismanaged, it can have detrimental consequences on both human health and the environment (Taelman et al., 2018). Thus, it is imperative that the impacts of waste management systems are assessed to ensure resource circularity whilst avoiding any adverse effects. In addition, it is important to assess whether or not the regulatory targets are aimed at the appropriate waste streams and sectors. Currently, no studies provide a comprehensive and system level life cycle assessment (LCA) model that enables consistent assessment of all of the waste streams occurring at national or regional level. This study, therefore, contributes to an ongoing EU project that seeks to develop a flexible modelling framework, which is adaptable to changes in framework conditions, technology options and regulatory focus etc., for quantification of relevant impacts on the EU waste management system, with particular focus on addressing future changes, tracking material flows, uncertainty analysis, and on import of EU and country-specific waste data through Eurostat. At the conference, the current model set-up along with any preliminary results and on-going recommendations are presented.

### References

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