

AN APPROACH TO UNIFY THE APPRAISAL FRAMEWORK FOR BIOREFINERY SYSTEMS AND FIRST CUTS TO ITS APPLICATION

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PROBLEM

As part of the desired bio-economy, biomass will find a wide industrial application in the future, re-placing fossil resources. Because of this, decision making in a bio-economy has to account for economic, ecologic and societal aspects. A standardized assessment methodology for biorefinery technologies, acknowledging all these aspects, has not been presented in literature so far.

OBJECTIVE

Development of a unified appraisal framework for biomass conversion systems addressing the bioenergy trilemma by integrating the triple bottom line of sustainability as well as all other demands emphasized in literature.

SUMMARY

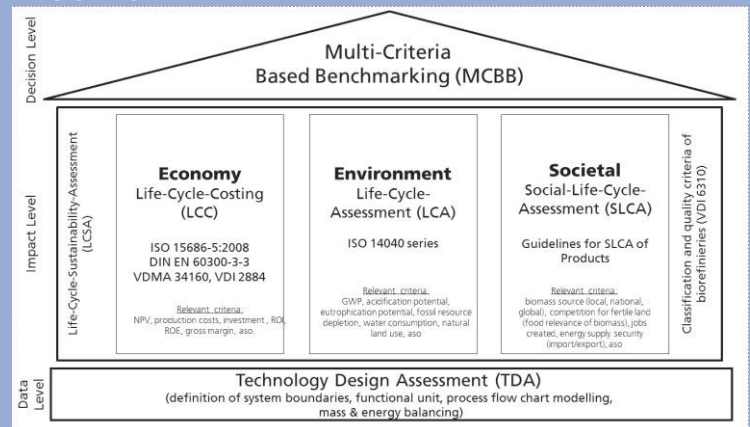
This work drafts a unified appraisal framework for biomass conversion systems that integrates different approaches on the data, impact and decision making level. On the bottom line the proposed architecture in total addresses all relevant requirements from literature and fits well into the valuable work that has been done previously.

IN COOPERATION WITH

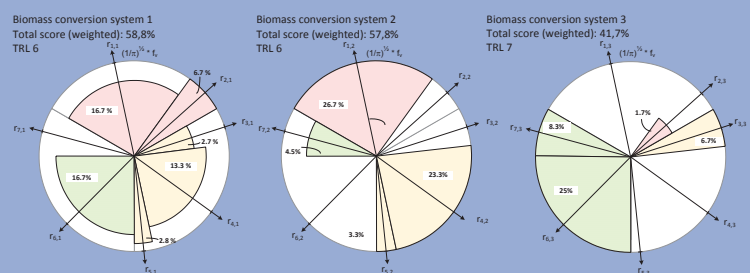
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RESULTS



The architecture of the UAF is based on a combination of matured methods, tools and norms and a tailor-made MCDM method called Multi-Criteria Based



Benchmarking.

Advanced radar plots (ARP) as MCBB result from a test data example.

[1] Suwelack, Kay; Wüst, Dominik (2015): An approach to unify the appraisal framework for biomass conversion systems. Biomass and Bioenergy 83 (12), S. 354–365. DOI: 10.1016/j.biombioe.2015.10.012.