WOOD K PLUS

Dendromass4Europe.eu

D4 EU

A methodological framework for Environmental and Social Life Cycle Assessment of bio-based value chains during R&D

D. Fürtner[1], E. A. Perdomo[1], L. Ranacher[1], P. Schwarzbauer[2], F. Hesser[1]

About the project

Dendromass4Europe (2017 – 2022) is establishing a value chain, based on dendromass from Short-Rotation-Coppice (SRC) in Slovakia. 2,500 ha poplars will be planted and feed into new bio-based products:

- functionally adapted lightweight fibreboards
- eco-fungicidal moulded fibre parts
- bark-enriched wood-plastic composites
- multi-purpose wood-plastic granulate.

In addition to the sustainable use of raw material, business opportunities and profit for the rural economy are expected.

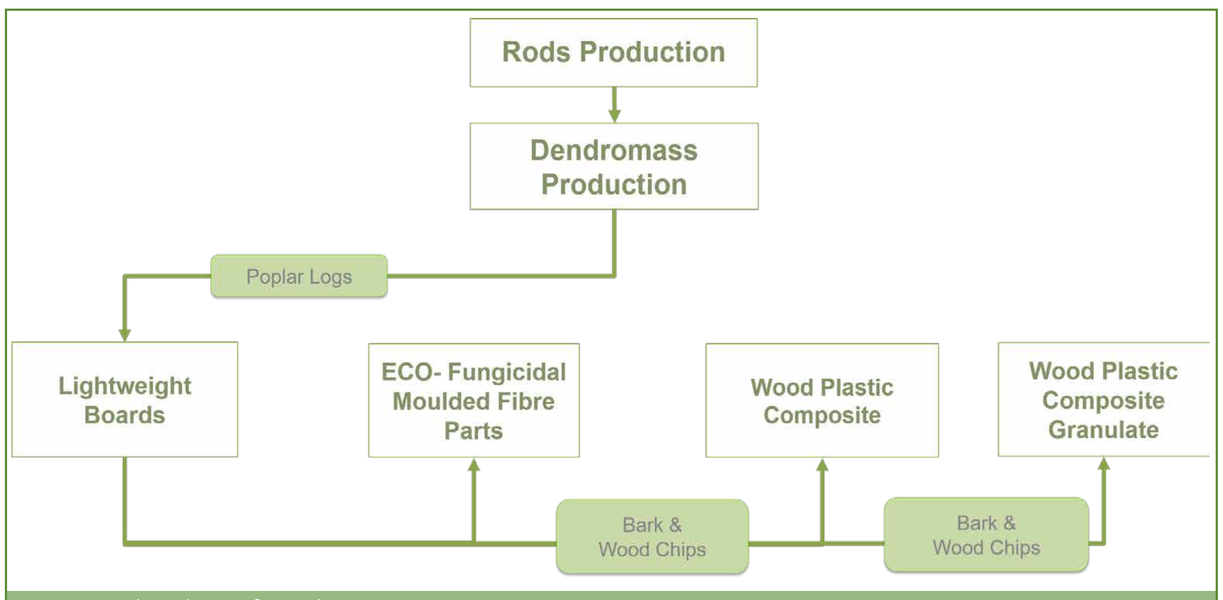

Figure 1: Value chain of Dendromass4Europe

Life Cycle Assessment

The LCA seeks to identify hotspots and derive levers to reduce the potential environmental impacts along the R&D phase. The following methodological considerations are accounted:

- Modular LCA approach which allows the analysis of a set of unit processes.
- Assessment of relevant environmental impact categories identified from literature related to bio-based systems.
- A sensitivity analysis that focuses on system optimization instead of product comparison.

Social Life Cycle Assessment

The aim of the study is to support the industrial partners in the R&D stage by analysing potential socio-economic implications along the value chain. The method will be adapted on region- and context-specific issues. To focus on the key issues, which are presented in the indicator-set, the involvement of stakeholders is highly relevant. Beyond the social aspects, the regional added value is estimated to consider economic and social hotspots. This enables increasing socio-economic sustainability for the rural population.

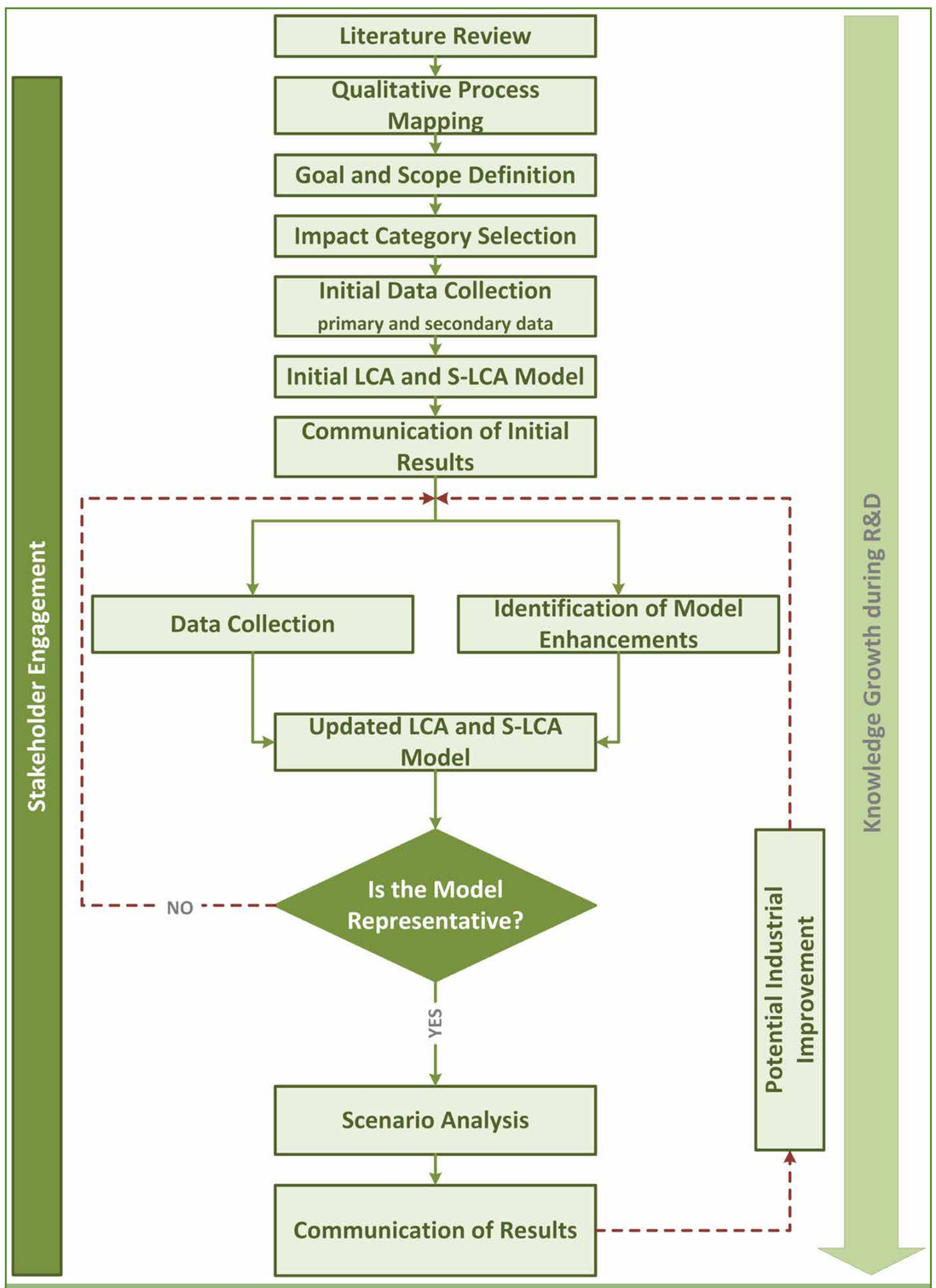

Figure 2: Methodological Process Map

First Results

Through a fruitful relationship with the project partners, the gathering of critical socio-economical and environmental data supports the construction of the S-LCA and LCA model. Thus, the following impact categories are currently considered:

- The environmental impact categories land use, climate change and energy use.
- Socio-economical indicators were gathered in literature. 213 indicators were screened and a survey including 58 indicators was presented to stakeholders in order to rate their relevance.

[1] Wood K plus - Kompetenzzentrum Holz GmbH, Altenberger Straße 69, 4040 Linz, Austria
[2] University of Natural Resources and Life Sciences Vienna, Gregor-Mendel-Straße 33, 1180 Vienna, Austria

info@dendromass4europe.eu

www.dendromass4europe.eu

Project Coordination:
Technische Universität Dresden
Forest Policy and Forest Resource Economics
Pienner Straße 23
D-01735 Tharandt

BBI JU

Bio-based Industries Consortium

Horizon 2020
European Union Funding
for Research & Innovation

D4EU has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement 745874.