Building WUR-WU Database on new biobased materials to facilitate LCA analysis

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Design Flagship Methodological Innovation

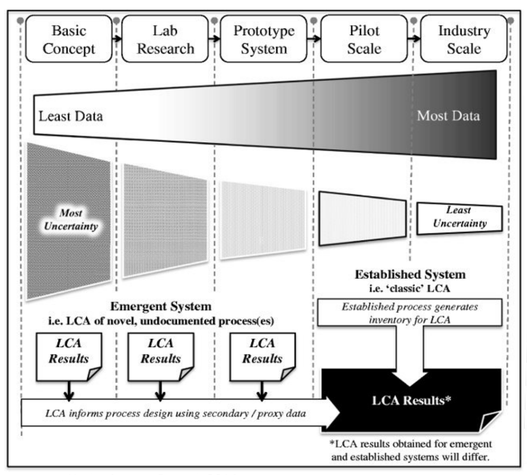
Objective(s)

- To establish a common, structured approach on how data should be collected data and reported for new biobased processes and biobased materials to be used in LCA studies, as well as techno-economic assessments. Including consideration of data quality, handling and reporting of confidential data.
- To set a collaboration between WFBR and WU-ORL to create integrated knowledge for the study-analysis of biobased products (with focus on textiles and building materials) to support the environmental assessment in the transition to a circular bioeconomy.
- To start building a database that contains information on relevant biobased materials which are not available in standard databases

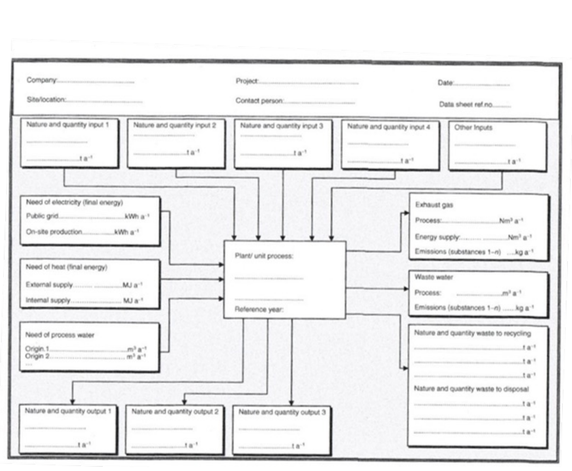
Main (Key) Result

3 working sessions with the following outputs:

- Understanding and compiling information on how we work individually and what we have already that can be use as starting point.
- Identify WU-WUR researchers that also work on LCA and what type of LCA work they perform.
- Literature review on life cycle inventory (LCI) data collection and prospective LCA. Clarification on the type of data used (e.g. background and foreground data, primary data).
- Creating a common-structured approach to perform the data collection of bio-based processes and products using the following tools: ***decision tree, draft Excel template for data collection with basic information on data quality.***
- Selection of two case studies to apply and evaluate our methodology for data collection: Textile - Lyocell and Building material - Miscanthus insulation mats (which are in agreement with the investment themes).



Hetherington, B. et al. 2014



Klöpffer W., Grahl, B., 2014

Figure 1. Literature review on lifecycle inventory data collection

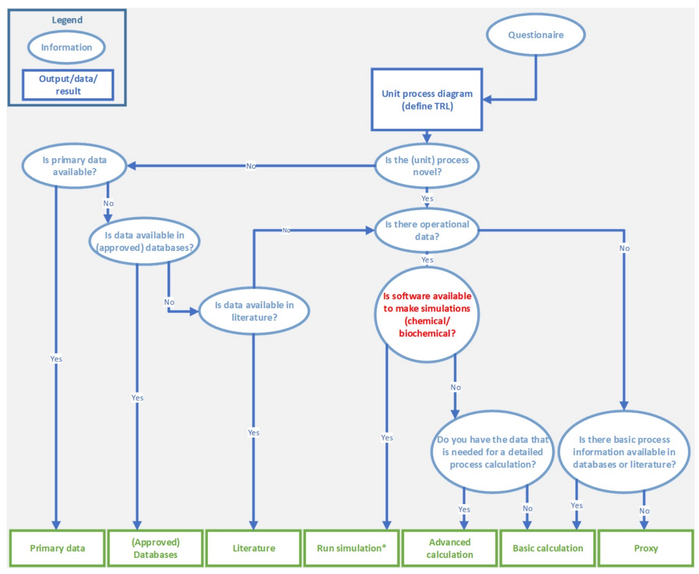


Figure 2. Decision Tree as a tool to visualize process during LCA data collection.

Lessons learned

- Important to identify, clarify and align the expectations of working in the project.
- Working session and brainstorming sessions are key to create understanding, discuss different point of view and clarify concepts, explain previous experiences or new concepts regarding the data collection and inventory.
- The researcher working on this project have common generic knowledge on LCA that facilitates the interaction, on the other hand this individual expertise bring added-value to analysis and to the results.

Figure 3. Key activities of the project.

Readiness

It is not straightforward to use the TRL and SRL concepts in this methodological project. However, we see this project as still under development. Our methodology will need at least to more iterations-reviews to be able to share this with WU-WUR researchers that also work on LCA.

Next steps

- Fine-tuning the decision tree tool for unit processes
- Finalise the data collection Excel template and fill the information of the 2 case studies.
- Evaluate the methodology, make conclusions and recommendations

The future prospect of the project? The team would like to have the opportunity in near future to share the methodology will other colleagues e.g. LCA network get their feedback and improved the methodology.

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