



Life Cycle Assessment of agri-food systems

An operational guide dedicated
to developing and emerging economies



Part 4

Conclusions and moving forward

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Based on a participatory and consensus-building approach to formalize actual field experiences from a panel of senior international experts for agri-food LCA studies in developing and emerging contexts, this guide promotes an approach based on fieldwork and designed with and for all stakeholders associated with the study. The present guide insists on collaborative, ethical, operational and communication considerations and provides the most up-to-date and appropriate models to perform the inventory and the impact assessment in such contexts, making clear recommendations on all aspects of the study.

The most important recommendations of the guide are summarized below.

LCA practitioners should co-design and perform the study with all associated stakeholders:

- Clarify the study purpose and constraints; never accept a poorly designed or under-resourced study.
- Design and validate the goal and scope of the study with the commissioner.
- Analyse the community of the study as well as each stakeholder's expectations and potential fears; take time to explain, build trust, protect interests, and always give something back!
- Work on the field as a team with local experts and partners, other experts, and farmers.
- Take care when developing typology, the sampling strategy and the survey of data providers since this constitutes the foundation for the quality of your results.

LCA practitioners should use most adapted models for field emissions in tropical conditions taking account of their study constraints. The most important (in terms of contribution to impacts) direct emissions per great agri-food category are summarized and a decision tree is provided to support the selection of field emission models according to the study constraints. Recommended and second-choice models are provided for all important field fluxes. We propose a selection of best LCA practices for each major agri-food category, with an emphasis on the construction of LCIs, including recommendations on ad minima inventories and computation of direct emissions (see Appendix F p. 138). At system level, it is important to differentiate between non-productive and productive stages or results could be over- or underestimated.

Regarding impact assessment, an overview of available LCIA method sets is proposed and explained and a decision tree to help identify the most adapted sets of method for each study is provided. Detailed and up-to-date presentation and recommendation documents are also provided in Appendix H (p. 144) for the most important impact categories: climate change, soil quality, human toxicity and ecotoxicity, biodiversity due to LULUC and water scarcity.

Throughout the guide, data quality, variability and uncertainty is addressed at all levels: in the typology and sampling protocol design, in the relationships with data providers, in the checking and validation of data collected in the field and finally at the interpretation level, by identifying the main sources of uncertainty

and integrating them into the final results. The whole approach being based on fieldwork with stakeholders, recommendations mostly focus on the accounting for uncertainty attached to unit process data.

Finally, specific recommendations are made on the best way to help each stakeholder understand, trust and take advantage of the results. This includes recommendations on the best practices for comparing, visualizing and interpreting LCA results in a transparent way.

The editors of this guide plan to continue updating and complementing their recommendations over time and present them on a dedicated website.