

Introduction

Agricultural chains have been assessed historically using a socio-economic approach often coupled with an agro-technologic one. These two approaches consider the social and the economic dimensions of sustainability but do not account for environmental impacts. The Life Cycle Assessment approach was developed with a focus on evaluating this dimension. To obtain a comprehensive picture of sustainability, multiple parallel analyses should be done. However, the results so produced are often hard to compare and integrate.

This work, developed by CIRAD teams, intends to address the issue of initiating a fruitful multidisciplinary dialogue and investigating the possibility of integration of these three approaches. Its final objective is to bring the different methods as close as possible and to propose a multidisciplinary harmonized framework for assessing the sustainability of agricultural chains.

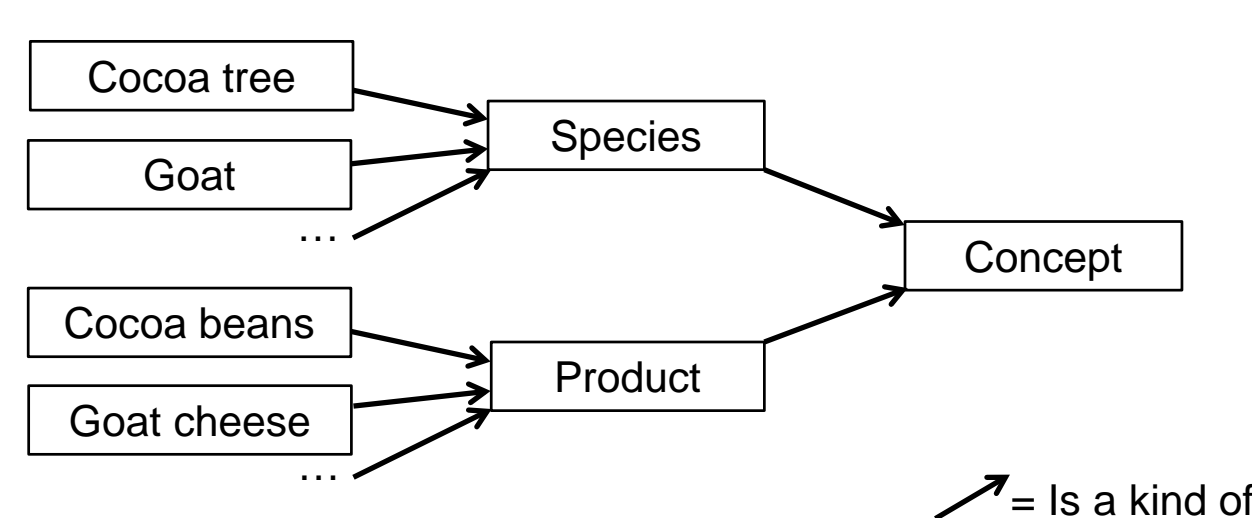
MARTIN Pierre
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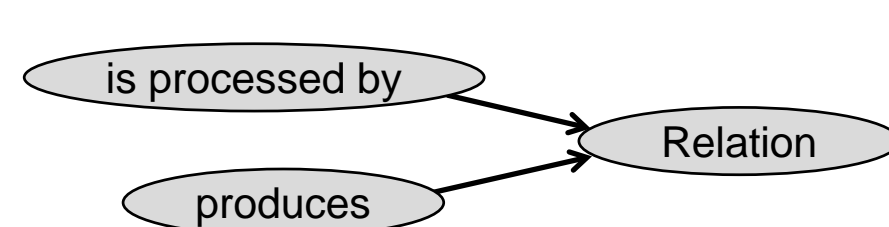
Material and Methods

Modeling approach and method using 3 types of semantic graph

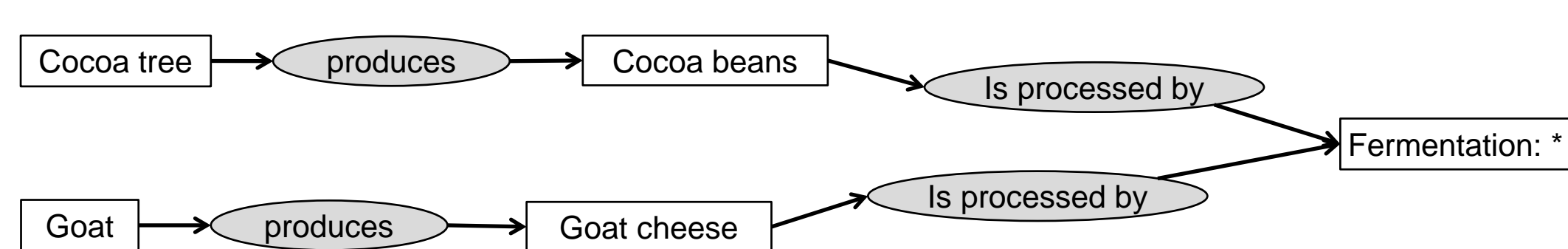
Vocabulary of concepts



Vocabulary of relations



Description of a domain

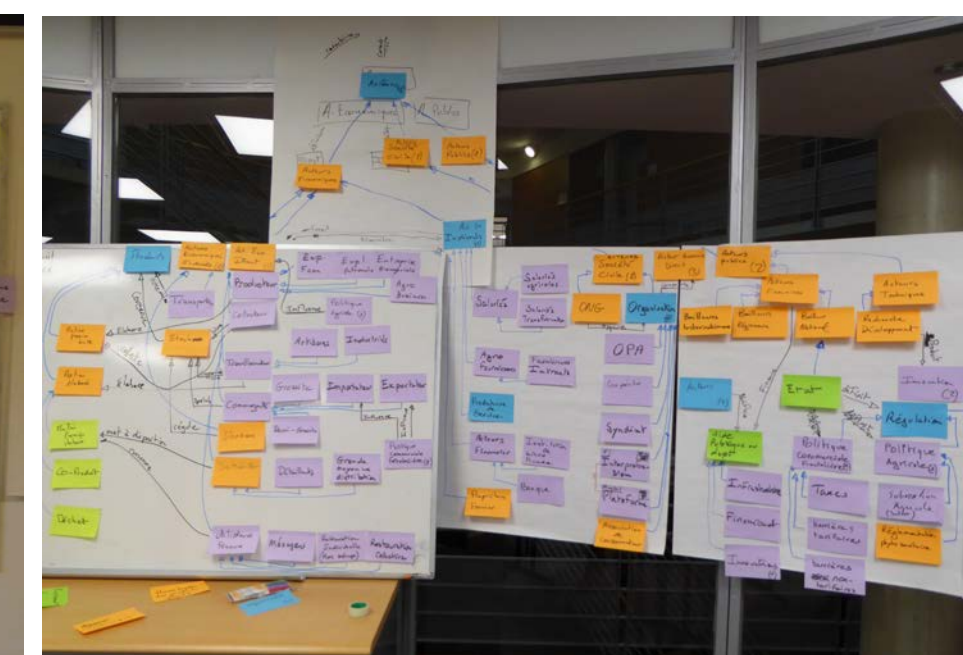


4 types of meetings

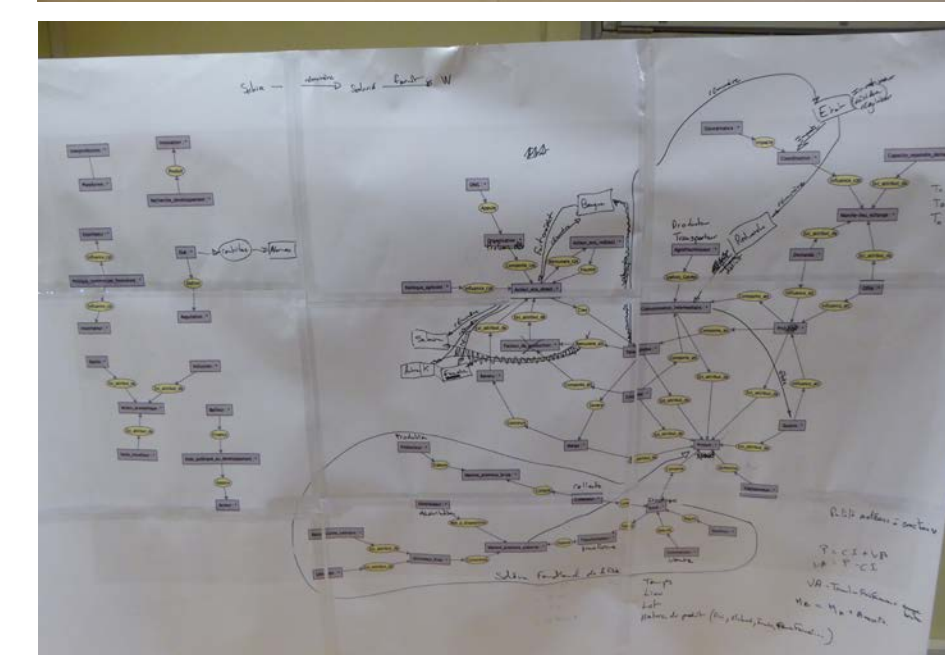
1. Brainstorming



2. Formalization



3. Validation



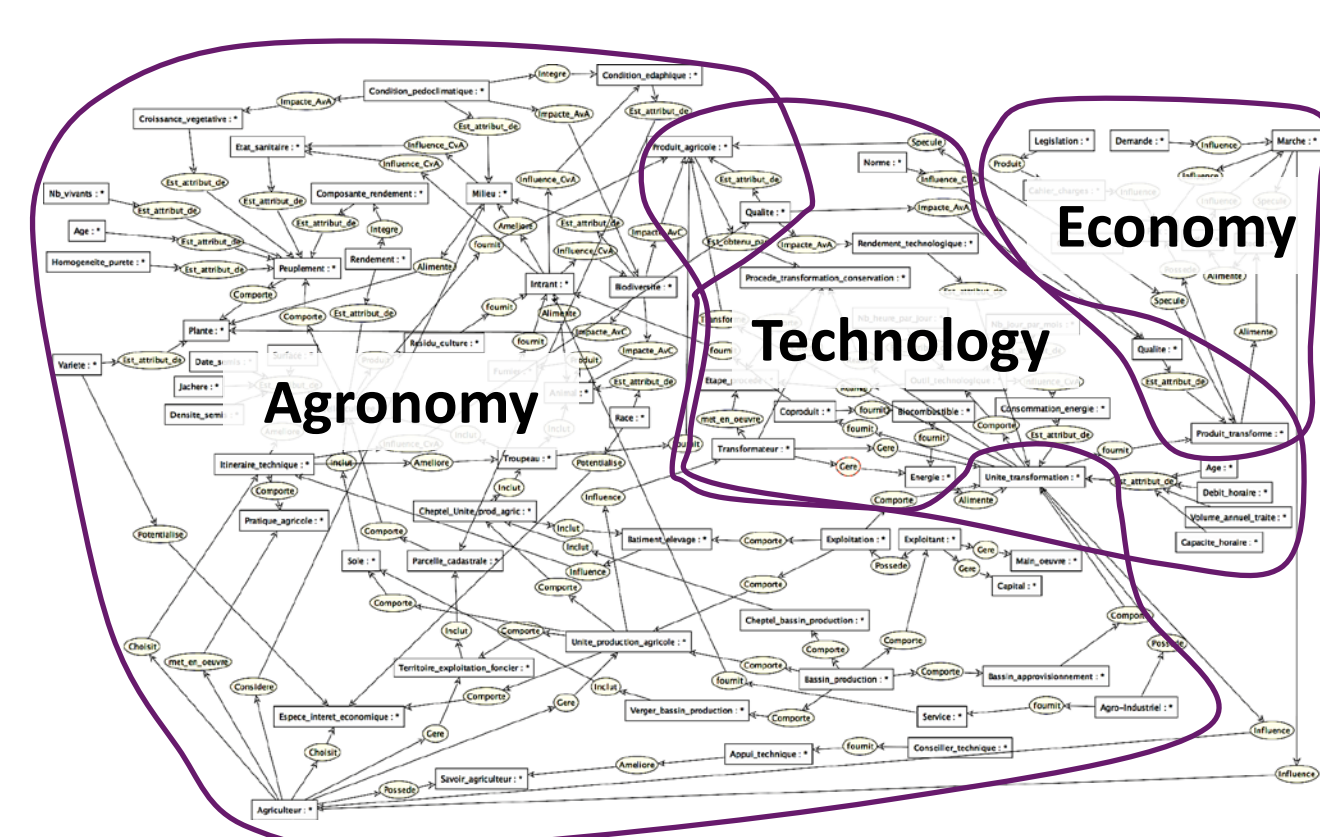
4. Vocabulary mapping



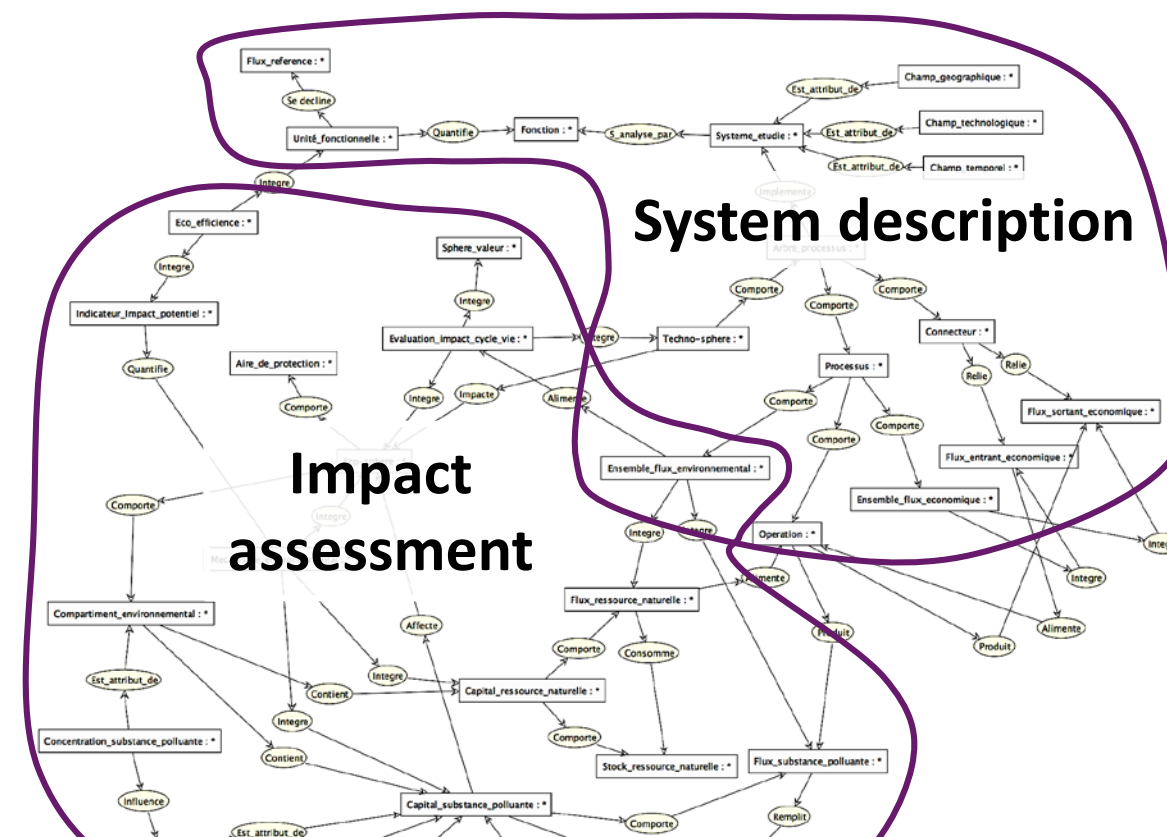
Results – a prototype of the harmonized framework

Description of the 3 domains

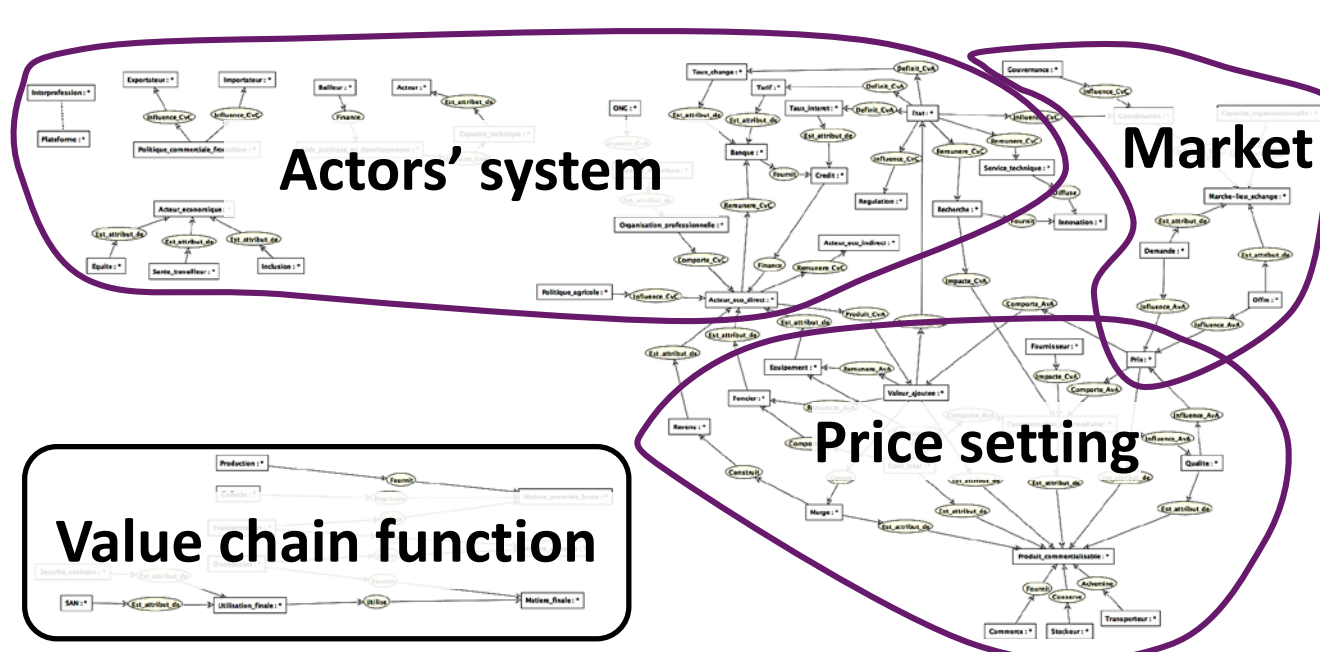
Agro-technology approach



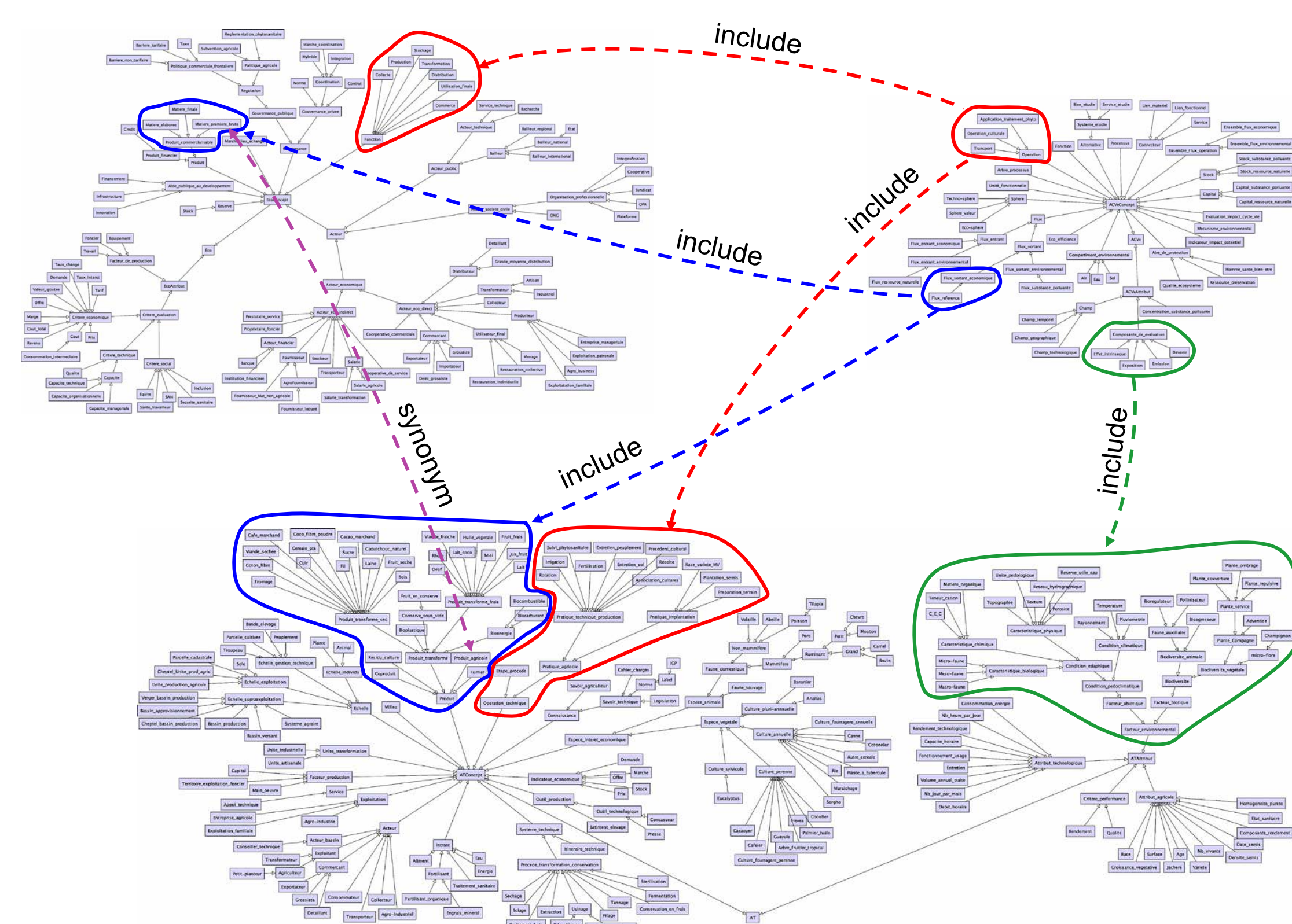
Life Cycle Assessment method



Socio-economy approach



Mapping vocabularies of concepts



Next steps

Improve domain descriptions,
 Manage polysemy in the vocabulary mapping
 Translate concepts and relations (Agrovoc...) to get a multilingual system

Conclusion

The harmonized framework will facilitate the coordination and joint work of experts of different disciplines involved in these assessments and will allow the identification of a harmonized dataset required for the different approaches within the EuropeAid programme "Inclusive and Sustainable Value Chains" (2016-2019). It will also contribute to develop a CIRAD Knowledge Base System devoted more broadly to the investigation of the topic: "agricultural chains & sustainable development" (2016-2019).

> Acknowledgement

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