

Seminar in the winter term 2026/2027:

UNEP-Based Stakeholder Mapping and Questionnaire Development for the Social Life Cycle Assessment of BioSMART Biorefinery Value Chains

Dr. Andreas Rudi, M. Sc. Iuliia Neugber

Background and objective

The implementation of a sustainable biorefinery requires cooperation between biomass suppliers, industrial actors, technology providers, public authorities, local communities, customers and other affected groups. Stakeholder identification is also an essential preparatory step for Social Life Cycle Assessment (S-LCA), because different stakeholders can provide information about working conditions, local impacts, value-chain relationships, social acceptance and potential barriers to implementation.

The objective of this seminar project is to identify actual potential stakeholders for the BioSMART (<https://biosmart-biorefinery.eu/>) project and to develop a questionnaire that can be used in future interviews or stakeholder meetings. The results should support stakeholder engagement for biorefineries producing biofuels, aviation and maritime fuels, chemicals and other bio-based products.

Main research question

Which stakeholders are relevant across the feedstock, operational process and product stages of a BioSMART biorefinery, and which questions should be asked to obtain the information required for an UNEP-based S-LCA and future project implementation?

The students should:

- Define the BioSMART value chain using three stages:
- feedstock production and supply;
- biorefinery operation and conversion processes;
- products, distribution and end use.

Identify relevant stakeholder groups using the UNEP S-LCA framework, including Workers, Local Communities, Value Chain Actors, Consumers and Society.

- Find actual organisations that could potentially be contacted by BioSMART. The search should focus primarily on Germany and Baden-Württemberg and include:
- farmers, forest owners and biomass suppliers;
- waste-management and logistics companies;
- biorefineries, fuel producers and chemical companies;
- technology and equipment providers;
- municipalities, regional authorities and public agencies;
- airports, airlines and other potential fuel users;
- research organisations, associations, NGOs and certification bodies.

Prepare a list of at least 30 potential organisations. For each stakeholder, record the organisation name, location, website or public contact point, value-chain stage, stakeholder category, expected role, relevance for BioSMART and reason for possible contact.

Prioritise the stakeholders and identify approximately 10–15 organisations that should be contacted first.

Link the stakeholders to relevant UNEP subcategories, indicators and information needs.

Develop a modular questionnaire consisting of:

- a common set of questions for all stakeholders;
- specific questions for feedstock suppliers;
- questions for industrial and technology actors;
- questions for public authorities and local communities;
- questions for customers and end-users.

Include questions concerning stakeholder needs, social risks, working conditions, supply-chain relationships, regional impacts, barriers, social acceptance, future use cases, communication preferences and willingness to participate in future BioSMART activities.

Conduct an internal pre-test and revise unclear, repetitive or unsuitable questions.

The students are not required to conduct a complete S-LCA or a large stakeholder survey. The central practical outputs are a reliable list of potential BioSMART stakeholders and a questionnaire that can be directly adapted for future interviews.

The relevant dates (kickoff, midterm and final presentations) will be announced here soon.

Attendance at all dates is mandatory.

Online registration must be completed before 08 Oct 2026, 00:00 via <https://portal.wiwi.kit.edu>. Confirmation of a seminar place is only valid once final registration has been made in the student portal (<https://campus.studium.kit.edu/exams/registration.php>).

Important: Please check your emails regularly after submitting your application in order to respond promptly to a seminar place offer! If you do not reply within the deadline, the place will be re-assigned to other applicants.

Application Documents:

- Current transcript of records (Bachelor and, if applicable, Master)
- Short motivation letter

Contact:

Andreas Rudi (andreas.rudi@kit.edu)

Iuliia Neugber (Iuliia.neugber@kit.edu)