WP8: Sustainability scheme blueprint for bio-based products

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Objectives

Addressing sustainability standards for bio-based products:

- **RECOMMENDATIONS** to current standards;
- **PRINCIPLES, CRITERIA, INDICATORS** – amplification;
- **BLUEPRINT** for a sustainability certification scheme;
- **STANDARD DOCUMENTATION** – development

RECOMMENDATIONS (D8.1)

The gaps in current standards identified earlier in the project were the basis for a SWOT/PESTEL analysis and a consequent identification of criteria. The resulting recommendations are presented in Table 8.1.

GAPS	Recommendations
Gaps in criteria and indicators	• supplementary 9 criteria addressing efficiency of land and tertiary resource use, land change and SO_2 related emissions, PM10 pollution, and end-of-life management
Harmonization of criteria assessment and operationalization	• integrability of multiple environmental claims and socio-economic indicators • improving the interoperability between all stages of supply chain and actors • conceptualizing a composable system
Consensus on minimum criteria	• development of methodology that enables checking of cross-sectoral compatibility of different certification schemes applied along the life-cycle supply chain.
Leakage effects	• development of methodology on "low iLUC risk biomass"
Inter-sectoral products	• merging cross-sectoral approaches, which can reveal conflicts of interests between conventional biomass-based sectors and in the conjunction with industry sectors
End-of-life	• non-specific sustainability indicators related to the EoL stage and material and energy circularity
Traceability	• CoC as an integral part of traceability along a life-cycle supply chain • implementation of progressive solutions of information technology • effective and measurable traceability indicators

A certification scheme was proposed for the environmental qualification of bio-based products that can also address the social and economic principles, criteria and indicators developed within STAR-ProBio (Figure 8.1).

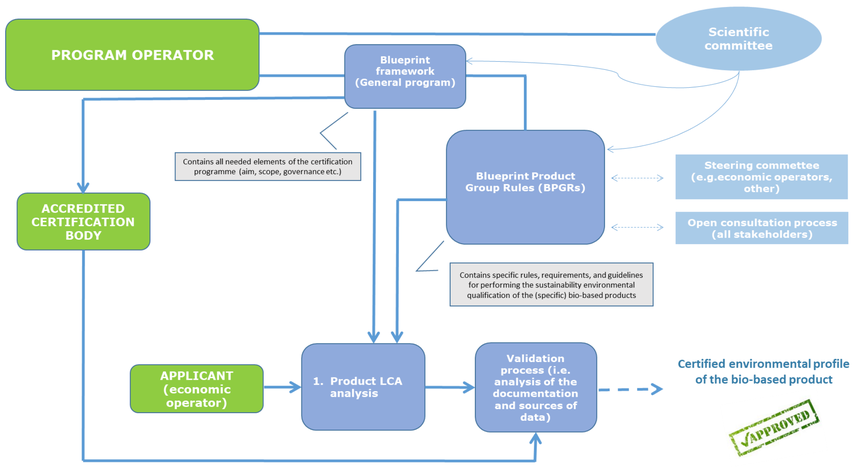

Figure 8.1. Proposed certification scheme for the environmental qualification of bio-based products

The insight into environmental and socio-economic implications in the context of regulations and policy on sustainability was presented in the ecosystem-based DPSIR analysis (Figure 8.2).

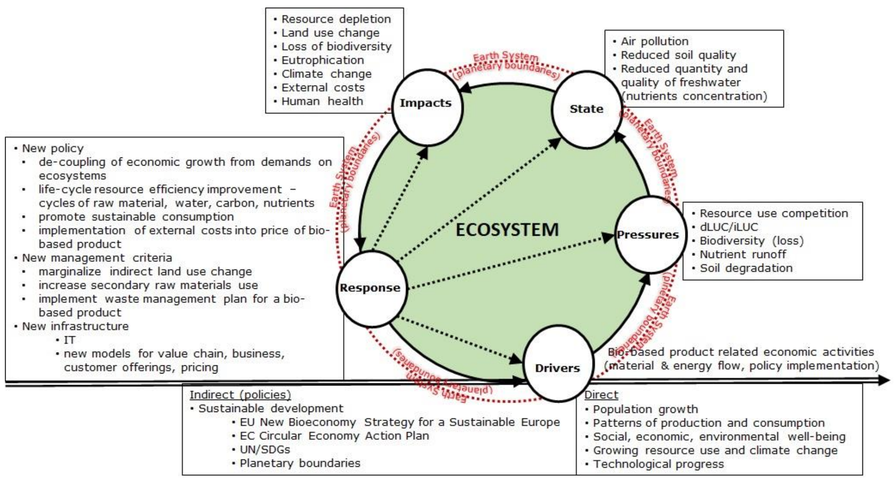

Figure 8.2. The key factors representing the flow of causes and effects in analysis of sustainability along the life cycle of bio-based products

PRINCIPLES, CRITERIA, INDICATORS (D8.1)

Recommendation of environmental, social and economic principles, criteria and indicators and their operationalization were discussed assuming normative issues related to benchmarking and reference product characteristics on the basis of analysis of mulch film and packaging markets, feasibility of defined sustainability thresholds definition and communication of sustainability aspects. In this context the use of the following was highlighted and recommended:

- a set of environmental, economic and social principles, criteria and indicators as the outputs from WP2-7;
- a virtual reference product as a "benchmark";
- threshold concepts, e.g. "sustainable threshold" per capita for greenhouse gas emissions as a "sustainable budget";
- communication of environmental sustainability - a proposal of graphical communication covering information on absolute LCIA in relation to functional unit, the percentage positioning in comparison with the reference product, the relevance of LCIA results with the magnitude of impact, and a single score of sustainability.

BLUEPRINT (D8.2)

The main challenge within the STAR-ProBio project was to combine the existing elements and project results into smart and meaningful frameworks supporting the sustainability assessment of bio-based products. Within WP8, the SAT-ProBio framework was conceptualized. The work on SAT-ProBio started very early in the project and the final D8.2 was preceded by the overall scheme (UNITELMA), the three internal collaborative documents: 1st (ed. UWM) and 2nd (ed. AUA) drafts, and the scoping paper drafted by Stefan Majer (DBFZ) on the basis of agreed consensus on the final structure at the STAR-ProBio workshop in Olsztyn (September 2020).

The SAT-ProBio framework contains two key tools: (1) a sustainability assessment tool (IAT) – for the assessment of specific bio-based products also enabling the comparison of the bio-based products against fossil-based products, and (2) the sustainability certification tools (SCT) – as an overarching umbrella, describing the methodological framework and underpinnings. The blueprint provides information on the most relevant sustainability assessment aspects concerning bio-based products and related value chains, that can be further used by policy makers, regulatory bodies, industries, associations, and the civil society.

The IAT and the three tools of SCT: Benchmarking Platform (BP), Framework Rules (FR) and Building Blocks (BB) can be applied separately or complementary. IAT can be applied by companies for sustainability self-assessment, benchmarking, eco-design and pre-check sustainability certification process; BP enables to contrast a bio-based product with existing certification scheme; FR describes rules for management of certification scheme; BB provides opportunity to select criteria and indicators according to a specificity of sustainability assessment. All tools complement each other in the thorough sustainability assessment in the light of current regulations and construct the fundament for standard documentation.

STANDARD DOCUMENTATION (D8.3)

The development of SAT-ProBio standard documentation for sustainability assessment of bio-based products was based on the approaches similar to Publicly Available Specification (PAS) or CEN Workshop Agreement (CWA). There was a consensus in STAR-ProBio consortium to follow the pathway of CWA in accordance with CEN-CENELEC GUIDE 29. Adopting suggestions by CEN/TC411, the STAR-ProBio consortium under the proposal of the Netherlands Standards Institute (NEN, Secretariat of the SAT-ProBio standard document) decided to launch similar to the CWA approach to canalize project results in standard language document. The groundwork for SAT-ProBio standardization document (D8.3) was the Integrated Assessment Tool (IAT).

D8.3 could be used in future as a basis to develop a standard at national or industry level.

References

STAR-ProBio D8.1: Recommendations concerning current sustainability standards associated with bio-based products and amendments to current standards of bio-based products Assessment
STAR-ProBio D8.2: Blueprint of sustainability certification schemes for bio-based products.
STAR-ProBio D8.3: Fast-track documentation for the procedure of certification of bio-based products

WP8 Partners

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