Policy scenarios for a level playing field: SyD-ProBio Model

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Introduction – Objective of Task 9.5

Task 9.5 - Policy analysis for the creation of a level playing field – of STAR-ProBio project aims at developing a system dynamics model for the assessment of the effectiveness of policy actions, and the creation of a level playing field for the bio-based products against fossil-based products.
Introduction (2)– Objective of Task 9.5

To fulfil the objective of Task 9.5, we:

- developed **SyD-ProBio model** as a final outcome of the system dynamics modelling work within the Task 9.5;
- analysed current and potential future policies for developing explorative scenarios that can be tested by the SyD-ProBio model;
- demonstrated **the use of SyD-ProBio model as a decision support tool** by simulating two explorative alternative future policy scenarios (BAU and ALT) and by assessing the model results.
Why SyD-ProBio Model (1) - ?

A vast array of policy instruments may affect the market uptake of bio-based products, as well as the key dynamics across value chains of bio-based industries.

The policy arena for bio-based products encompasses a wide range of policy areas at global, EU and national level, which yet result in a complex, fragmented, uncoherent policy framework of action.

Difficulties around agreeing on new legal frameworks. Formulating new policies and governmental measures add more complexity to the current situation.

Consequently, radical policies necessary for a sustainable bioeconomy imply a strong need for cross sectoral collaboration and inter/trans-disciplinary research adopting systems thinking approach.
What is SyD-ProBio?

SyD-ProBio Model is intended to serve as a decision support tool for a comprehensive understanding of key dynamics and conditions in the complex biobased polymer sector from many different aspects.
Methodology – for model development

Conceptual modelling and systems analysis
- A series of system science based and stakeholder participatory group modelling workshops
- Mutual learning, sharing knowledge and experience

System dynamics modelling and interaction
- SyD-ProBio is a system dynamics model software by ISEE systems.

www.STAR-ProBio.eu
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Model Structure & User Interface
Conclusions and future work (1)

SyD-ProBio Model, along with a policy scenarios analysis, can provide insights with respect to, e.g.:

- which existing policies and how these policies affect the future of European bio-based products market uptake;
- what conditions must be met to develop and implement effective policy mixes supporting the creation of a level playing field for bio-based products.
Conclusions and future work (2)

Model development is an ongoing process.

Due to the very complex structure of the polymer sector (several different biopolymers, which can potentially substitute different oil-based polymers), in the current version of SyD-ProBio we limited our modelling work with a focus on market uptake of polylactic acid (PLA) by substituting polypropylene (PP).

With its modular structure, however, it is relatively easy to extend and/or modify the model by implementing new modules or changing existing ones, based on the availability of input data and which policy options to be tested.
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