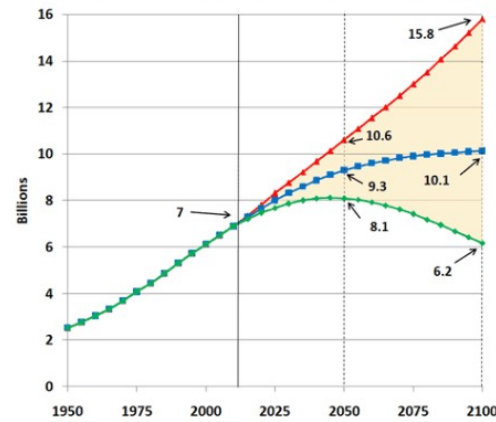
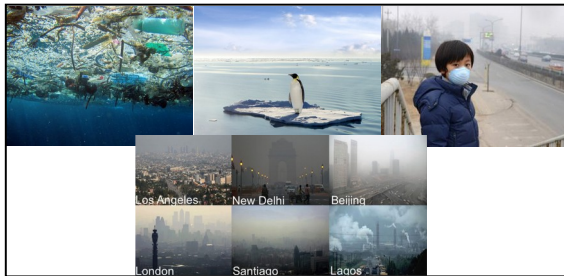


Tackling Uncertainty in the Bio- Based Economy Through Science - The case of the H2020 project STAR-ProBio

PIERGIUSEPPE MORONE AND FRANCESCA GOVON
UNITELMA-SAPIENZA, UNIVERSITY OF ROME

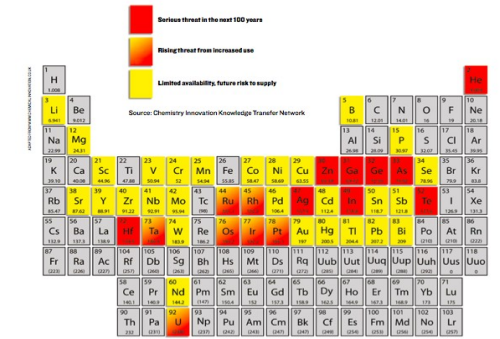
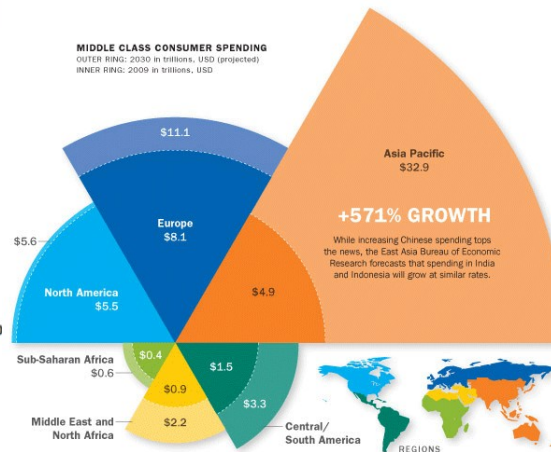


Framing the problem



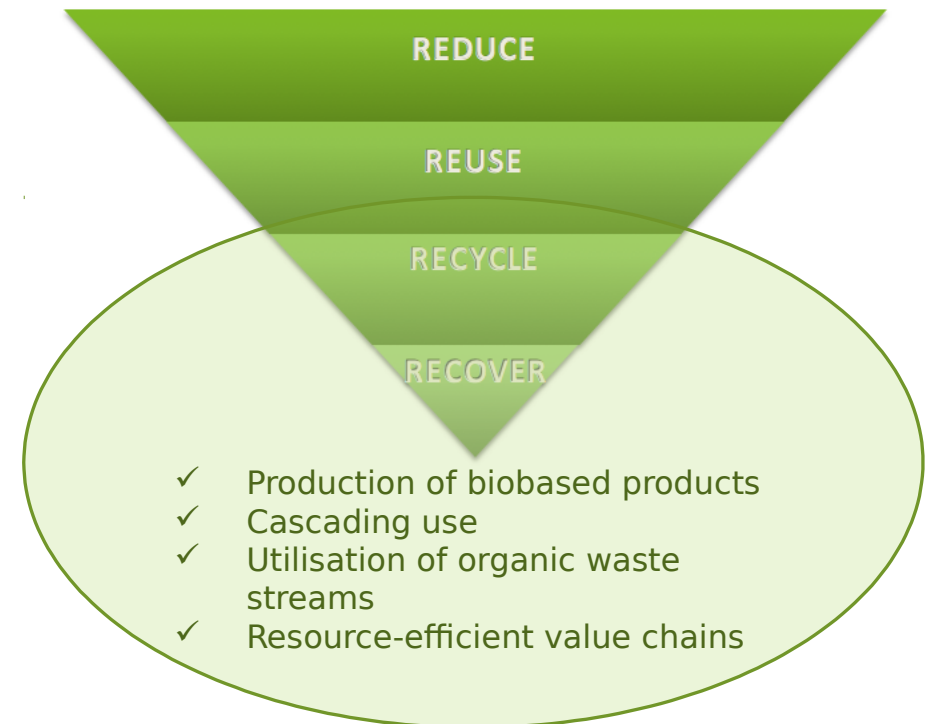
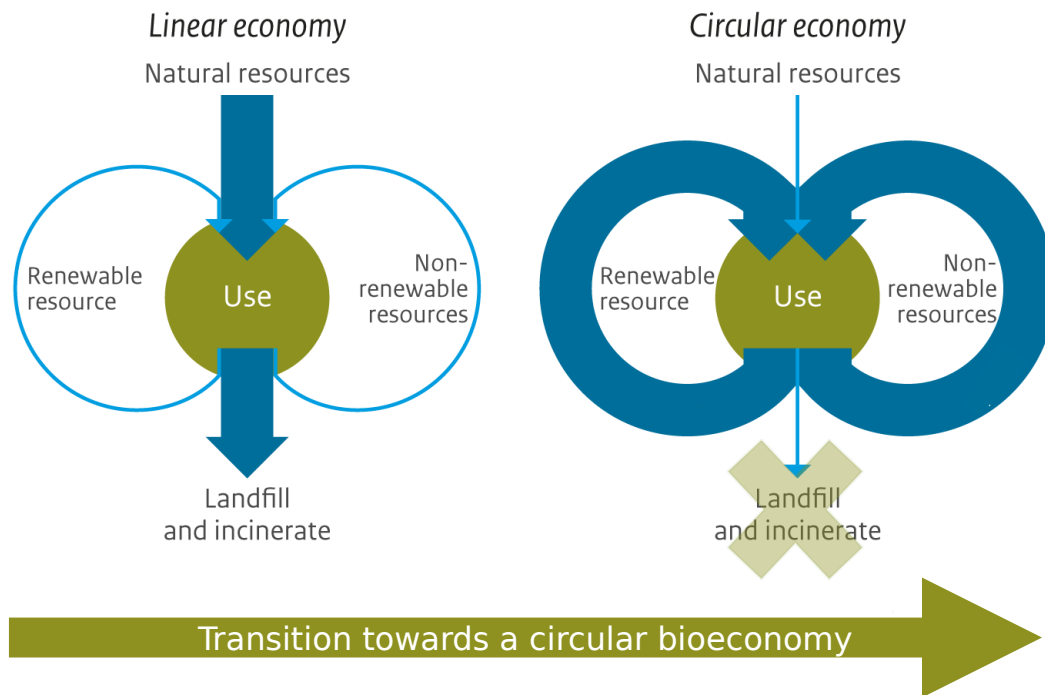
UN projec* on of popula* on growth under high-medium-low fer* lity assum p* on

The explosion of the middle-class



Framing the problem

From a linear to a circular bioeconomy



Challenges for the transition



The uncertainty realm includes:

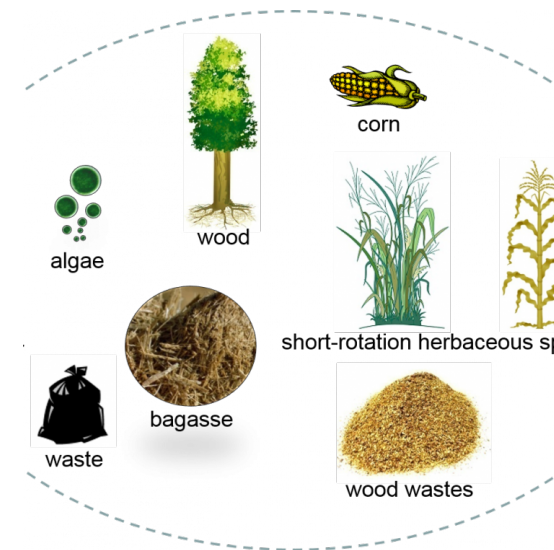
- ✓ Techno-economic uncertainty
- ✓ Environmental and social uncertainty

Challenges for the transition

Techno-economic uncertainty:

Unknown internal costs and benefits

- ✓ Technical uncertainty
- ✓ Resource uncertainty
- ✓ Functionality uncertainty



Challenges for the transition

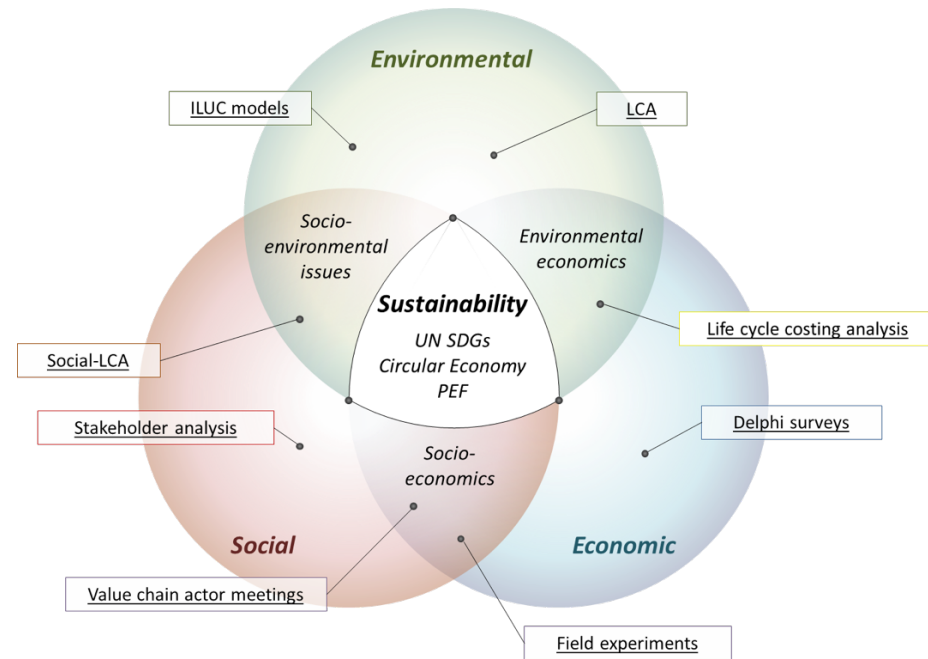
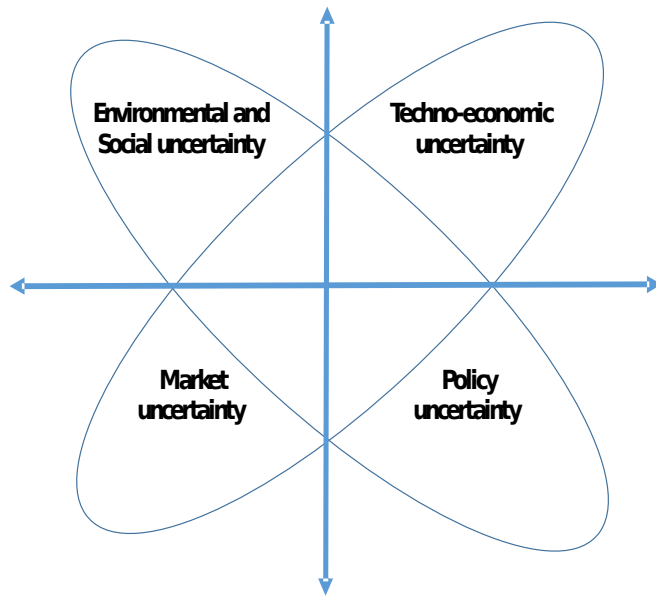
Environmental and Social uncertainty:

Unknown external costs and benefits

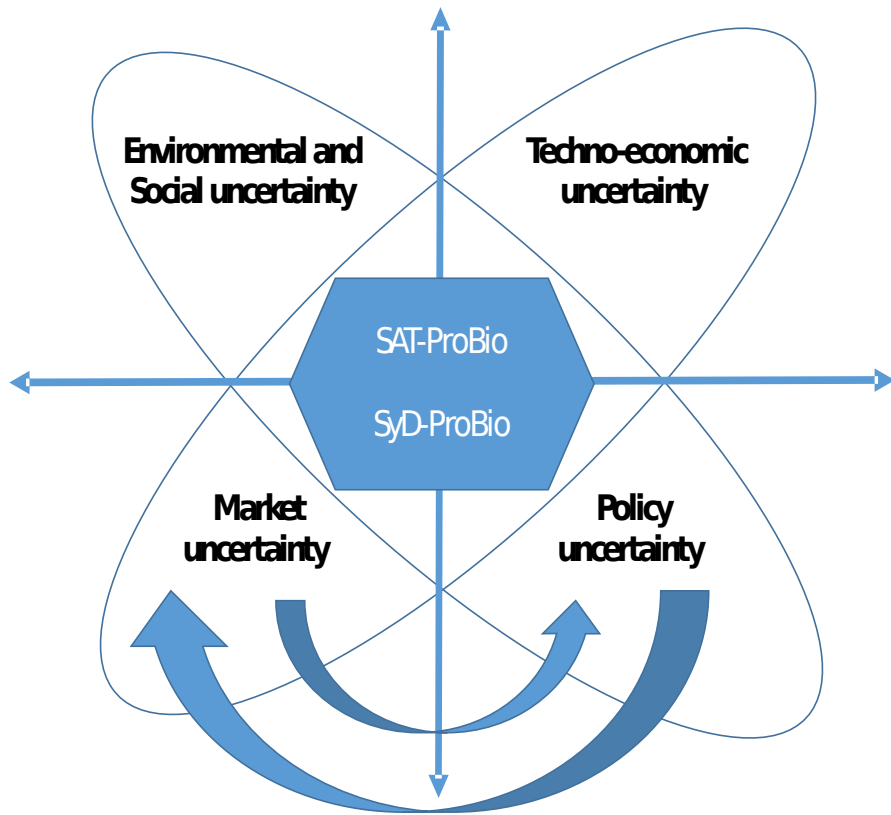
- ✓ Environmental uncertainty
- ✓ Social uncertainty
- ✓ Health uncertainty



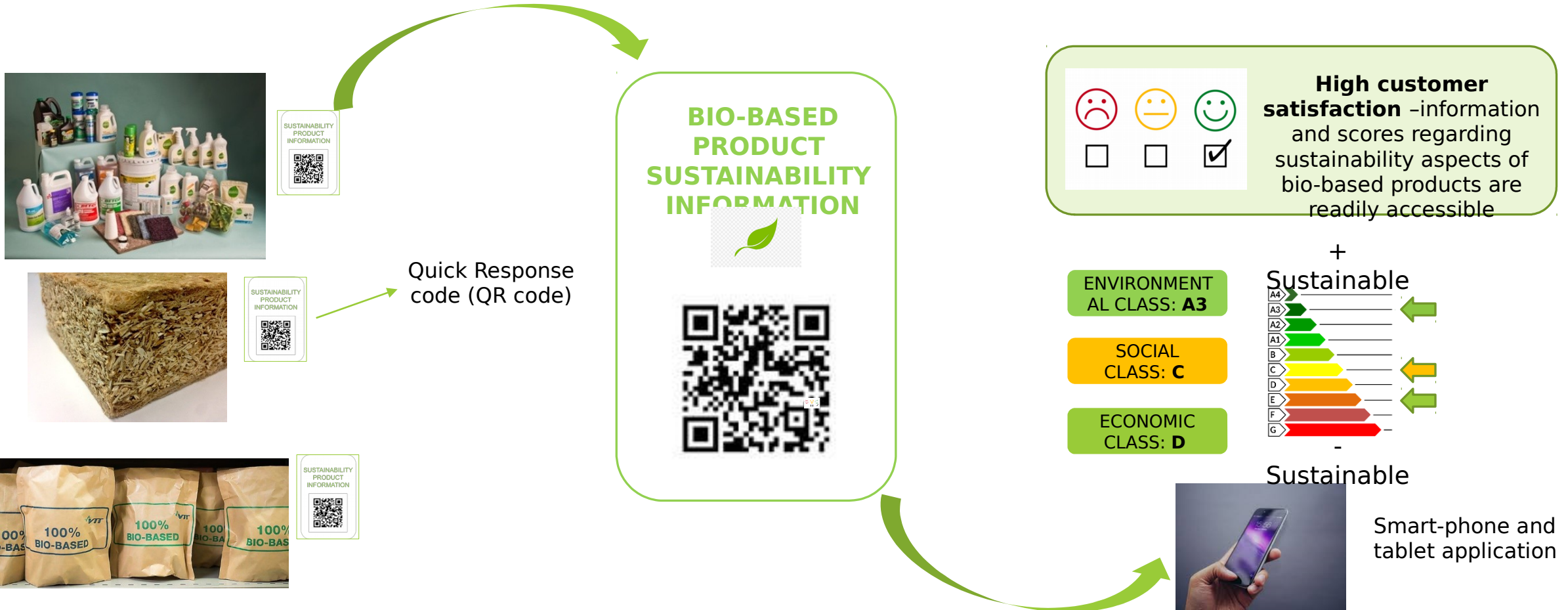
Bridging over uncertainty



STAR-ProBio approach to *Bridging over uncertainty*

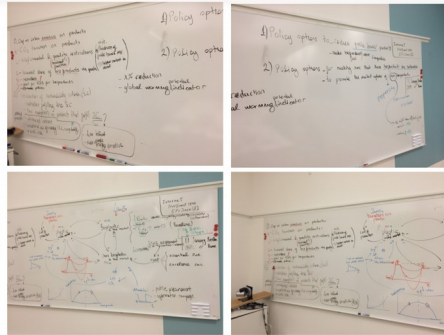


Overview of SAT-ProBio certification scheme

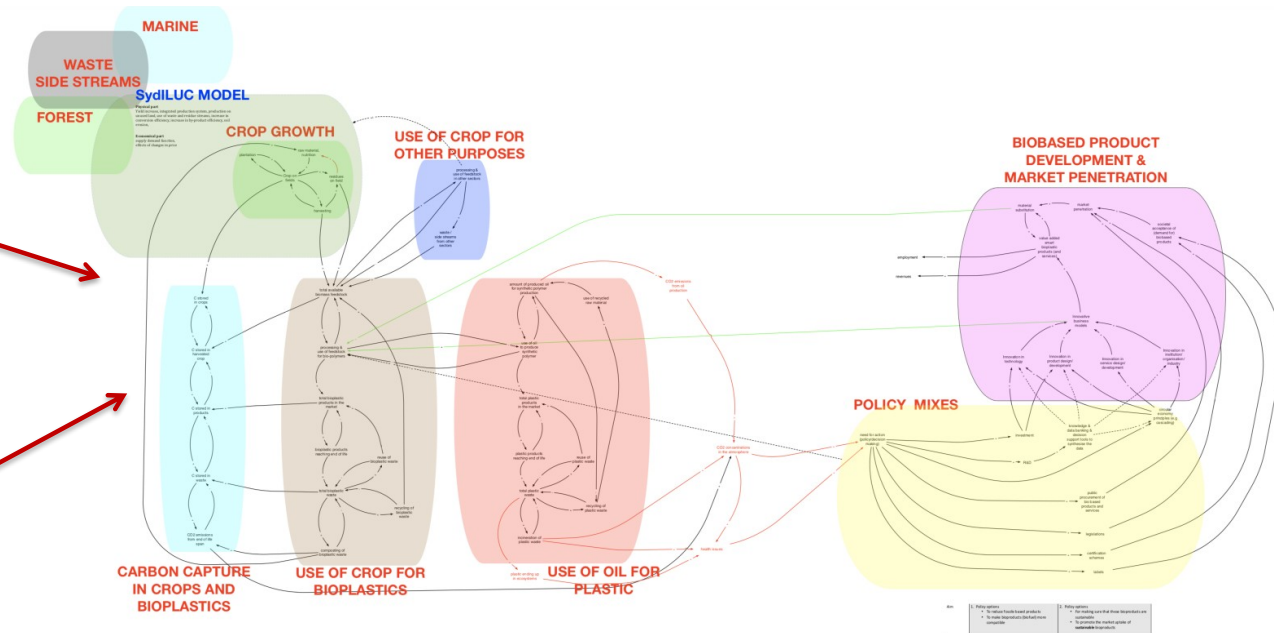
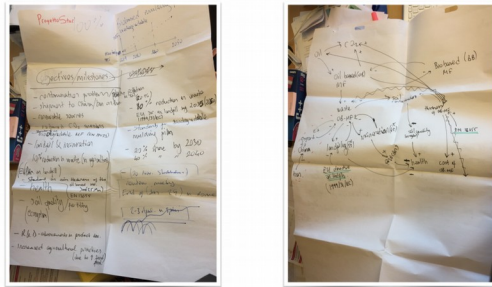


Overview of SyD-ProBio model

Outcomes from 181130 - Stockholm workshop
Brainstorming Policy options & Sustainability criteria

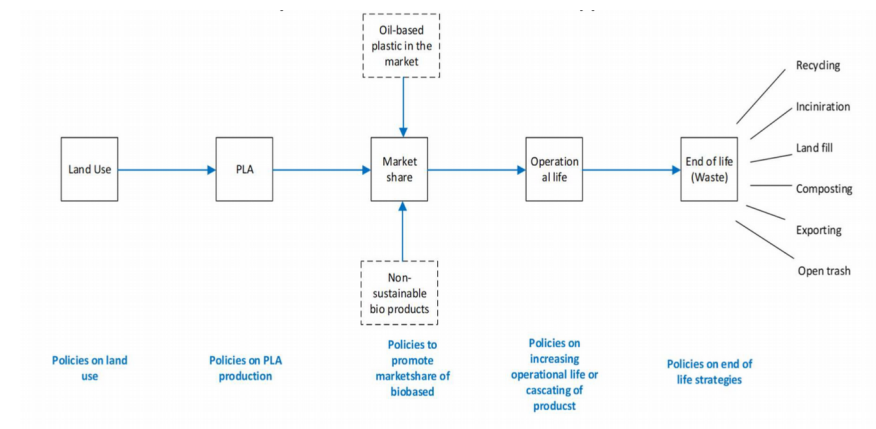
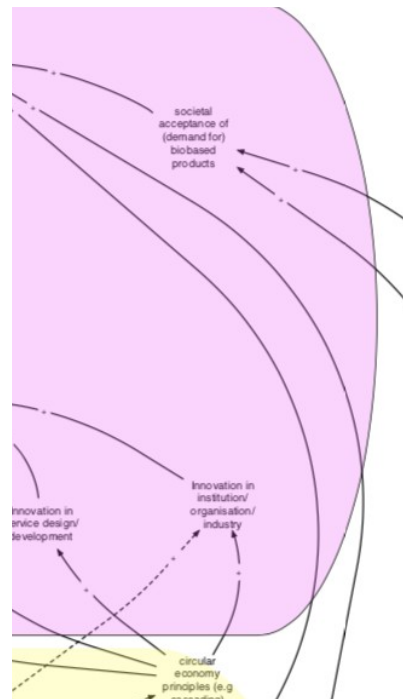
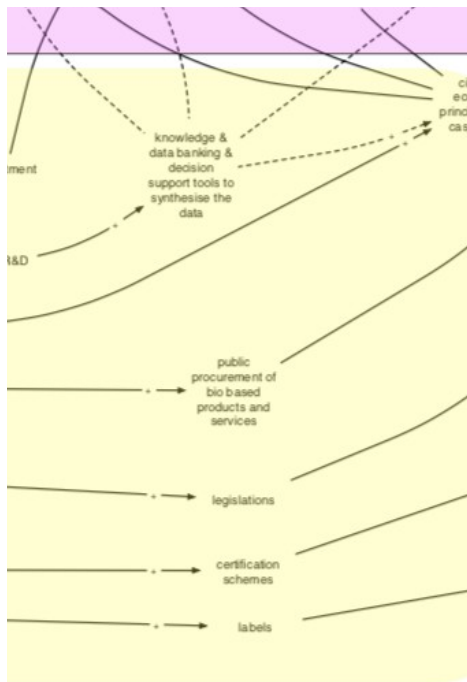


Outcomes from 181114 - Rome workshop
Brainstorming - mulching film



Complex systems to be understood through the identification of key variables of the system and the causal loops linking these variables

Overview of SyD-ProBio model



Final remarks

The transition is unavoidable

*To accelerate the transition we need to **reduce uncertainty***

*To reduce uncertainty we need **sound socio-economic-environmental assessment** of sustainability*

*This will allow policymakers to undertake much needed **policy actions** ...*

*... and **consumers to be more incline** to bio-based products*