

# **Governing sustainability of biomass producing landscapes and biomass-based supply chains**

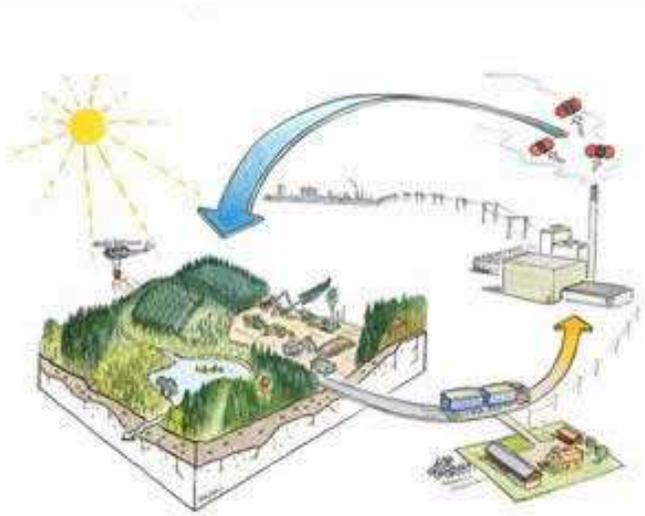
Key messages from a conference on state of the art and future prospects

EUBCE, Copenhagen, 14-17 May 2018

Inge Stupak, Tat Smith, Nicholas Clarke, Keith Kline, Niclas Scott Bentsen, Virginia Dale, Jinke van Dam, Rocio Diaz-Chavez, Ulrike Eppler, Uwe Fritsche, Martyn Futter, Jianbang Gan, Kaija Hakala, Thomas Horschig, Martin Junginger,, Søren Larsen, Charles Lalonde, Maha Mansoor, Thuy P. T. Mai-Moulin, Shyam Nair, Liviu Nichiforel, Marjo Palviainen, John Stanturf, Kay Schaubach, Vita Tilvikiene, Brian Titus, Daniela Thrän, Liisa Ukonmaanaho, Maria Wellisch

# How to ensure sustainable practices for these cyclic bioenergy systems?

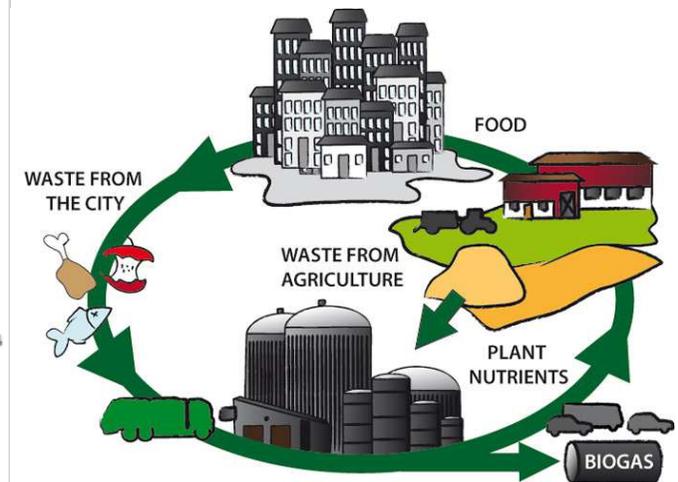
Forest bioenergy



Plant-based agricultural bioenergy



Biogas



# Continuously improve trust and legitimacy in sustainability of bioenergy practices

- #1: Achieving trust and legitimacy are necessary prerequisites to finding agreement on standards and related verification processes.
- #2: Recognize the value of regular, clear and transparent communication for creating trust and legitimacy (but not necessarily full agreement).
- #3: Agreement on terms and definitions is essential for clear communication.

# Sustainability

**A sustainable development intends to ensure that the environmental, social, and economic needs of the future are not compromised to meet the needs of the present.**

Sustainability is an **aspiration goal**, which is operationalized through a process of making informed choices for continual improvements, wherein improvements are:

- the best available opportunities to achieve specified targets
- identified using scientific analyses
- based on criteria, indicators and targets prioritized by current stakeholders while considering impacts on future generations
- better relative to other options, including business as usual or status quo,
- context-specific for a time, place and set of conditions.

**No human endeavor is indefinitely sustainable but one option is more or less sustainable than another based on defined criteria.**

**Sustainability is a moving target.**

# Legitimacy - three dimensions

## **Input legitimacy**

- The governance system is perceived as justified, broadly accepted standards; inclusiveness and equal representation and participation of stakeholders; neutrality in how stakeholders are addressed; procedural regularity; transparency of decisions, commitment.

## **Output legitimacy**

- The governance system effectively solves the concerns it was designed to address; comprehensiveness of standards; suitability of the selected indicators; robust and transparent tools available to measure and assess performance; clear communication of progress.

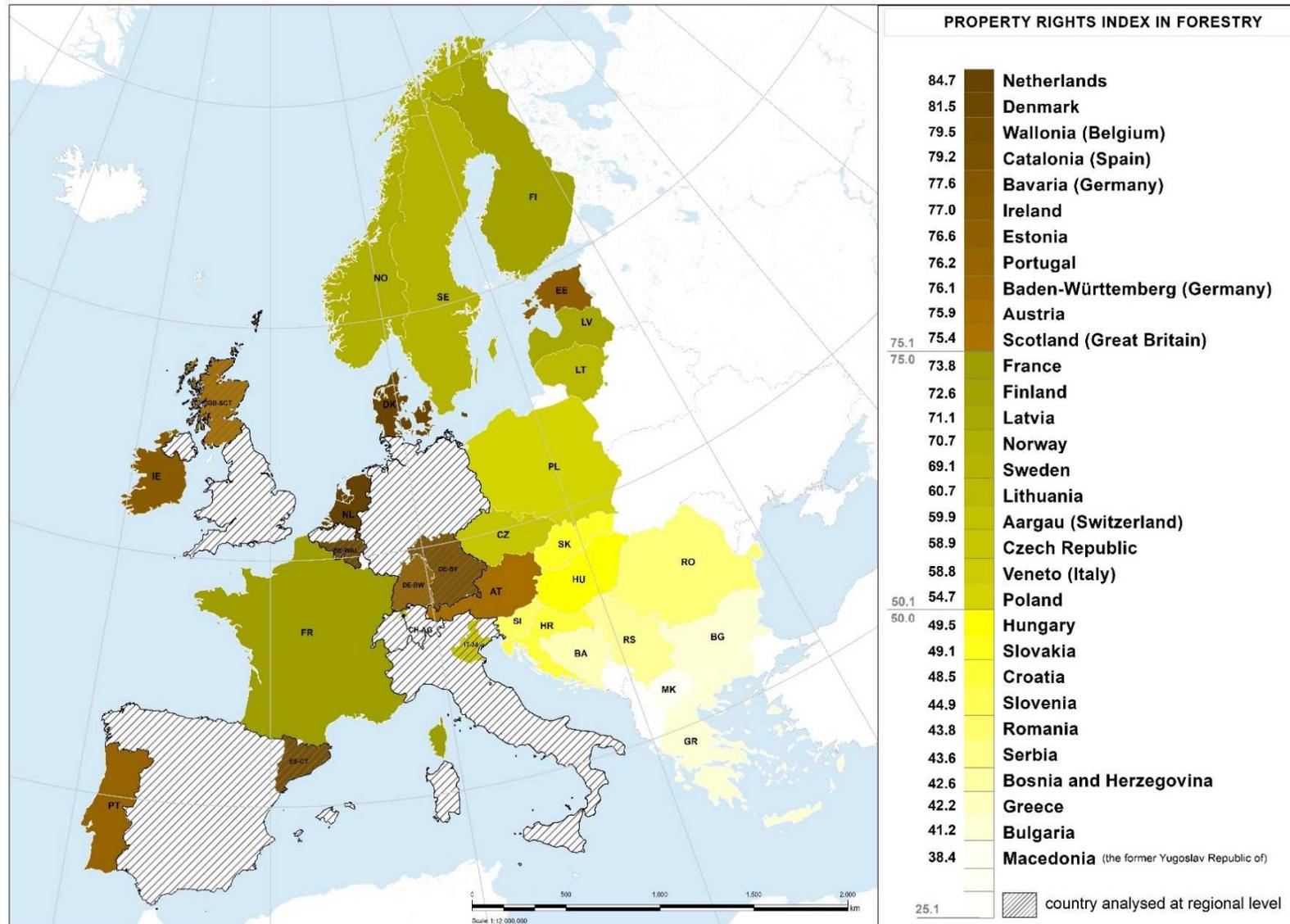
## **Throughput legitimacy**

- High efficiency of the administrative and financial aspects that compose the governance system.

## Seek pragmatic solutions and a balance between regulation and flexibility

- #4: Encourage all parties to stay focused on operationalizing the concept of sustainability and finding pragmatic solutions.
- #5: Recognize the need for documentation of sustainable practices, but do not freeze due to insatiable public demands for proof.
- #6: Communication is a prerequisite to ensure the relevance of research to industry requirements, as set by society or markets (cf. #2).
- #7: Legislative frameworks are necessary, but mandated, detailed, prescriptive requirements may not always lead to the most sustainable outcomes; consider needs for prescriptive regulation versus the need to give room for local field-based discretion in management.

# Stringency of the regulatory frameworks for private forest management across Europe



Less requirements imposed on private forest owners

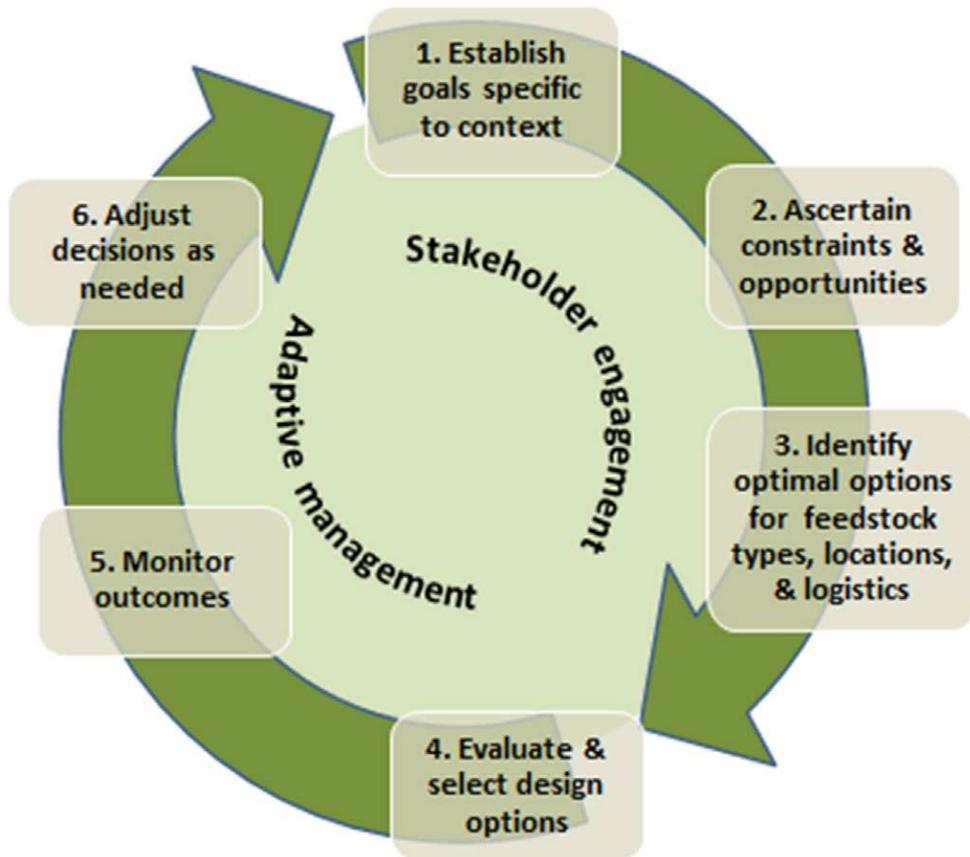


Many requirements imposed on private forest owners

# Dealing with a wicked problem

- #8: Recognize one underlying problem: We can not expect to predict all consequences of bioenergy or any other human activity in general terms; we are dealing with complex systems.
- #9: Principles and best practices have been developed and should continue to be applied, following adaptive management approaches.
- #10: The risk of undesired ILUC and IWUC should be considered not based on models but based on science and experience in a specific context; consider also positive indirect effects.
- #11: Decision-making should be informed by transparent, replicable, science-based analyses, including clear documentation of counterfactual assumptions, rather than “black box” models that are open to subjective manipulation.

# Adaptive management for dealing with wicked problems



Developed for incorporation of bioenergy crops at the local scale: Dale et al. (2016)



Developed and used by provincial government for forest management in Ontario (2016), see also Cheung and Smith (2018).

Adaptive biogas legislation in Germany, Schaubach et al. (2018)

# View bioenergy in a larger context - governance, drivers, and potentials

- #12: Requirements for bioenergy need to be compatible with governance of the larger sectors: agriculture, forestry, waste, biogas etc. and needs coordination among them.
- #13: Generally consider bioenergy as coproduct that can support improvements in current practices for larger industries.
- #14: Apart from larger sectors, local culture, technical understanding, and personal values are important factors driving land management practices.
- #15: Beware of models and projections of (very high) potentials that are disconnected from local economic, cultural and practical conditions.
- #16: Also, do not get bogged down with (very skeptical) “production targets”. Instead, focus on what practices improve sustainability and continually improve upon them.

Thank you!

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## Governing sustainability of bioenergy, biomaterial and bioproduct supply chains from forest and agricultural landscapes

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Copenhagen, 17- 19 April, 2018



Photo attribution: Johannes Ravn Jørgensen, Inge Stupak

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