

# The role of science for creating trust and legitimacy of sustainability governance for bioenergy and the wider bioeconomy in the Nordic and Baltic countries

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## Sustainable Forest Management Research in the Nordic/Baltic Region

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#### References related to CAR-ES:

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- **Stupak I, Clarke N, Lazdiņš A, Kabašinskienė I, Lukminė D, Lazdiņa D (2021) Sustainability governance for bioenergy and the wider bioeconomy. Fact Sheet from Centre of Advanced Research in Ecosystem Services (CAR-ES), 3 pp.**
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#### Other references:

- Hollensen S, Møller E (2018) [Is “glocalization” still the golden way for Electrolux? Is there more to be done?](#) Thunderbird Int Bus Rev 60:463–476
- McDermott C, Cashore B, Kanowski P (2010) *Global environmental forest policies—an international comparison*. Earthscan Forest Library, London, New York, p 372
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# Problem and approach

**How do sustainability governance systems for bioenergy and the bioeconomy need to develop in the future to match possible changes in the discourse on sustainable development as a whole?**

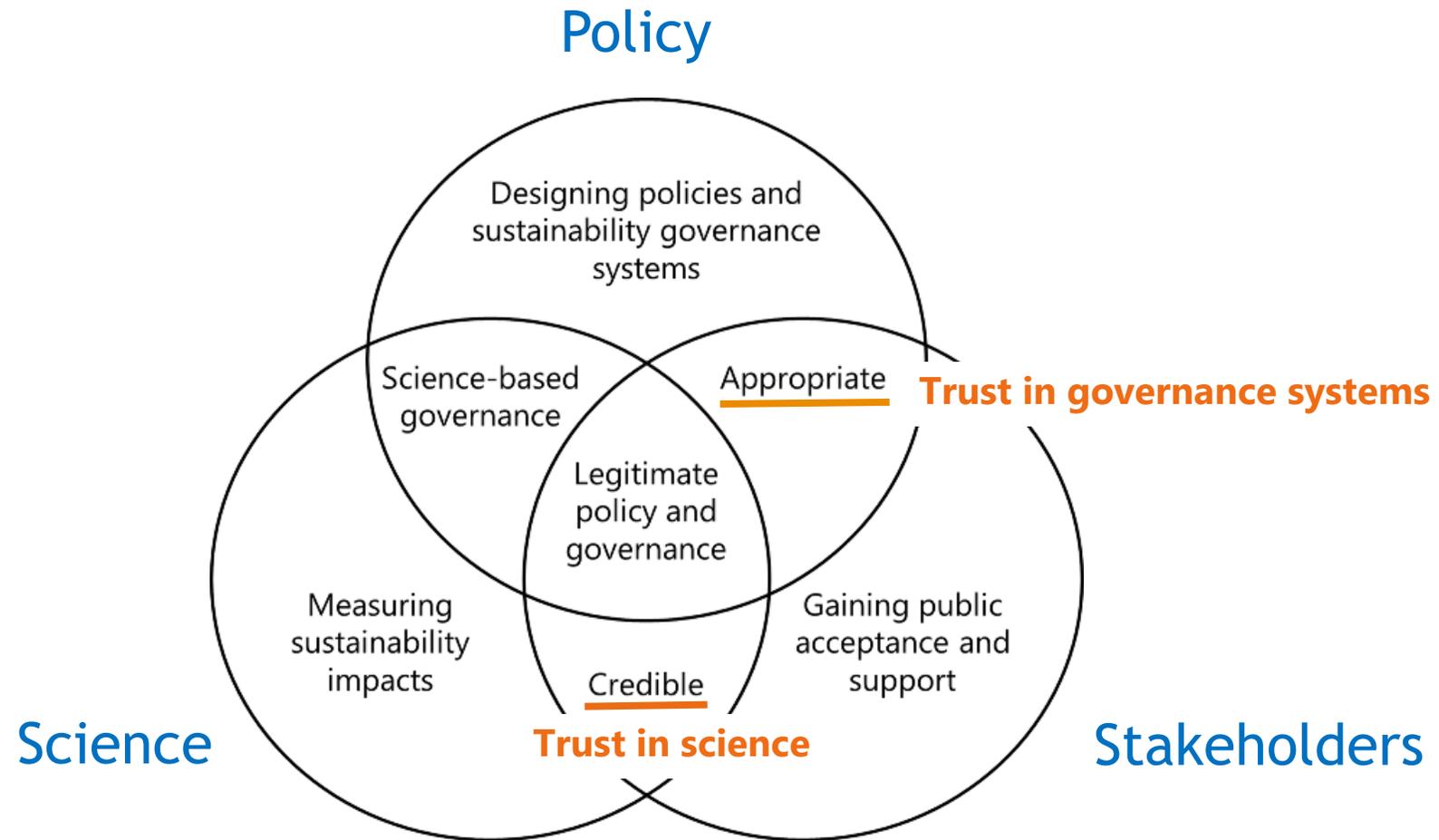
1. Sustainability governance for bioenergy and the wider bioeconomy – CAR-ES fact sheet
2. How is trust needed to effectively link policy and science?
3. When does governance have a role to play to obtain social licence to operate?
4. How to design legitimate governance systems to increase trust?
  - *Address all three types of legitimacy*
  - *Follow good governance principles*
  - *Use adaptive governance frameworks*
  - *Use governance at multiple levels*
5. Need for novel governance tools

# Sustainability governance for bioenergy and the wider bioeconomy



- Governance sustainability criteria have helped bioenergy to increase its share in renewable energy production
  - **Will sustainability governance continue to pave the way for further bioenergy deployment?**
- Secondary industrial “bioresidues” and “biowastes” do not trigger as many concerns as especially “stem wood”.
  - **Which bioenergy feedstocks will be perceived as sustainable in the future?**
- **How can bioresidues and biowastes be defined?**
  - Practical forestry commonly works with 10-30 assortments or more depending on end-uses – which are residues?
  - The definition would have to vary depending on the geographical context if unintended impacts and missed opportunities are to be avoided
  - The definition will be a moving target as societies turn their attention to re-use and recycling as part of a circular bioeconomy.
  - Explore the use of the biomass price as a criterion - it should be as low as possible relative to other assortments.
- Biotechnology might continue to develop opportunities for use of residual and waste biomass for high-value goods
  - **Against the intent, will it increase the pressure on forestry and agriculture management and the need for best practice guidelines?**
- The pandemic has revealed societies’ vulnerability and inequality and there are limitations of the current sustainability governance systems.
  - **Are there incentives to “upgrade” global value chains to increase local benefits?**
  - **Will there be enough sense of urgency to negotiate new international sustainability governance regimes?**

# Trustful relationships are critical to achieve social licence for the use of forest biomass for products, energy and the wider bioeconomy

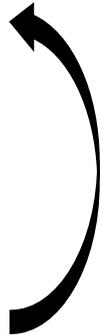


# Governance has a role to play when there is trust

**Increase trust** – less resources needed for monitoring and control, and risk-based approaches more acceptable?

**Increase legitimacy**  
– social licence to operate

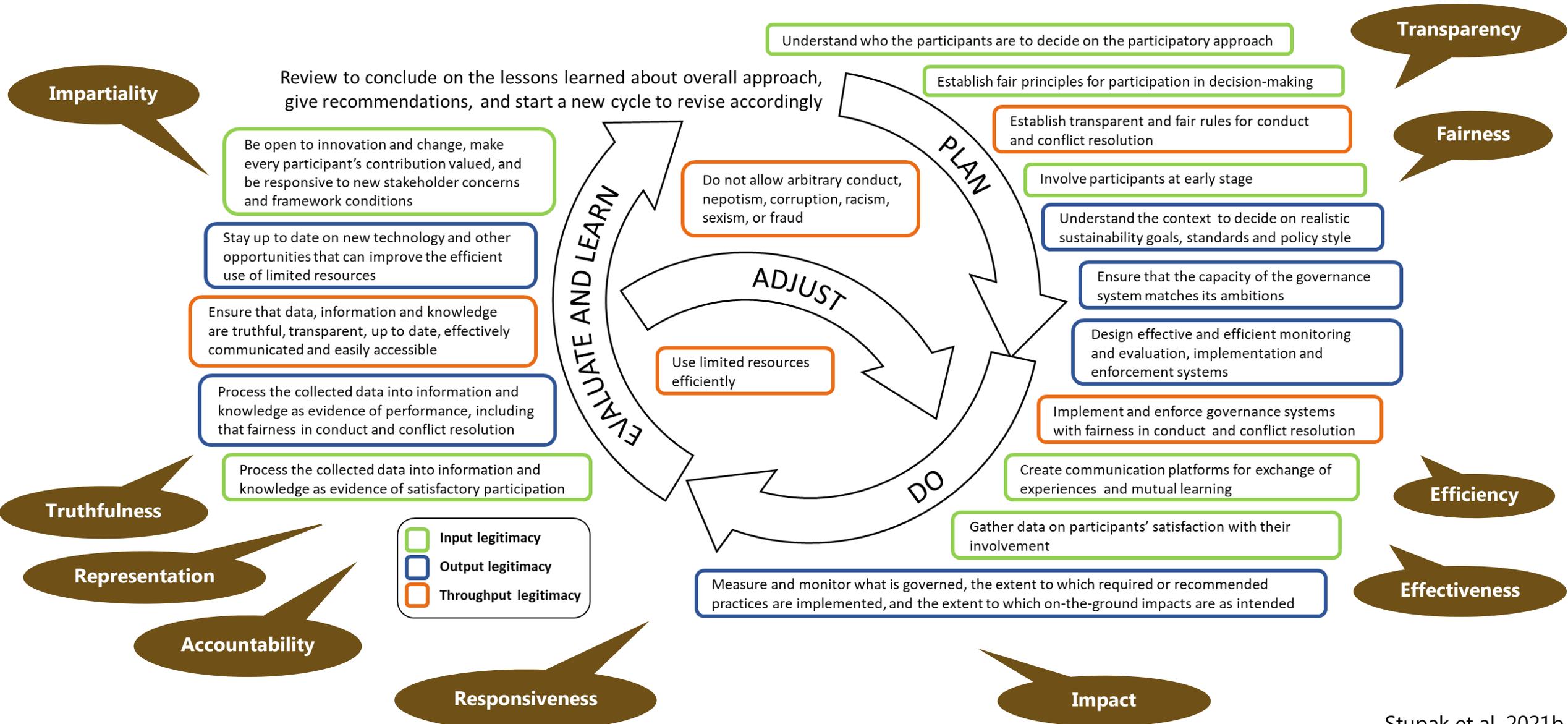
	Low levels of suspicion	High levels of suspicion
High levels of trust	<ul style="list-style-type: none"> <li>Trust by shared values</li> <li>Less incentive for monitoring, science and control</li> <li>Prone to manipulation</li> </ul>	<ul style="list-style-type: none"> <li>Trust by documentation, verification and science</li> <li>Value disagreement possible, but willing deference to authority</li> <li>High incentive for monitoring, science and control</li> </ul>
Low levels of trust	<ul style="list-style-type: none"> <li>Limited interdependence</li> <li>Low incentive for monitoring and control</li> </ul>	<ul style="list-style-type: none"> <li>Trust by beliefs and ideology</li> <li>Harmful motives assumed</li> <li>Monitoring, science and control are disbelieved</li> <li>Prone to manipulation</li> </ul>



# Address all three types of legitimacy

Input legitimacy 	Output legitimacy 	Throughput legitimacy 
Gaining the approval of actors through their satisfaction with ...		
...their participation and involvement in the governance system	...the success of the governance system in achieving what it attempts to achieve	...the level of efficiency, fairness, impartiality, transparency etc. in design of implementation and enforcement systems
<b>High quality participation...</b>	<b>...to make effective progress towards sustainability goals</b>	<b>...in a resource efficient and fair manner</b>

# Apply good governance principles and adaptive and legitimate governance



# Multi-level governance is necessary to achieve legitimacy across scales but how to reconcile concerns at different scales?

Globalization  
(Standardization)

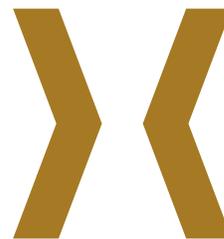
Localization  
(Differentiation)



Forest management is linked to consumers through complex and diverse global supply chains.

After Hollensen & Møller 2018

Need for **prescriptive, standardized requirements** to assure stakeholders and customers in distant markets that the desired level of environmental practice is followed



Need for **flexible and locally based decision-making** if forest management is to be appropriately tailored to current and changing local environmental and social conditions

One of the greatest challenges facing sustainable forest management is solving this conundrum

After McDermott et al. 2010

# Need for novel governance tools

In difficult situations, patiently set for a long-term strategy, where scientifically sound arguments are continuously explained and repeated in respectful dialogue

**Toolbox 2:** Governance research framework to identify and **correct where principles and criteria for good governance are not being followed** (input, output and throughput legitimacy)

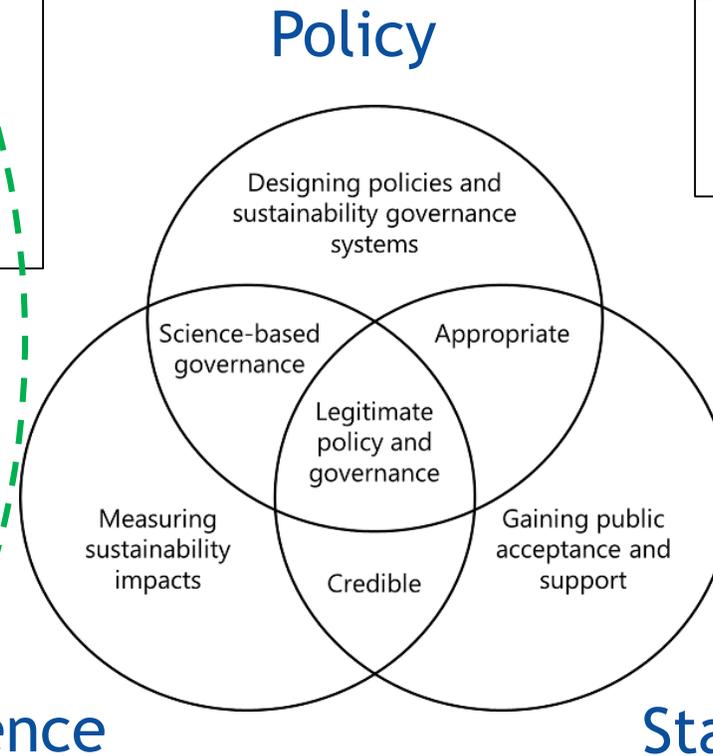
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**Toolbox 3** to bridge the **policy-science gap**, e.g. between specific knowledge needs for more general conditions:

- Brokers and knowledge centres
- Incentive structures and training for scientists

**Toolbox 4** to ensure a **high quality of the information basis** and correct misconceptions:

- Responsible conduct of research
- Systematic review
- Monitoring and evaluation systems



**Toolbox 5:** Communication platforms for policy makers, stakeholders, including scientists

- Monitor **stakeholder satisfaction**
- Information exchange for **mutual learning**

**Toolbox 6:** Communication platforms for **coordination across scales**

**Toolbox 1: Adaptive governance framework**

# Online workshop: Dialogue on governance to develop sustainable forest landscapes for production of wood for energy and the bioeconomy

Session 1, Oct 12: Sustainable forest management and bioenergy in the Baltic states

Session 2, Oct 13: Verification of compliance with sustainability requirements for forest bioenergy

Session 3, Oct 26: How to calculate and model where and when forest bioenergy can help to save carbon emissions?

Session 4, Oct 27: Research to underpin future policies related to sustainable forest management and wood end-uses



[Registration and more information on workshop website](#)