

Acceptance and feasibility of FMU-level and risk-based certification for ensuring sustainability of wood pellet supply chains

Conceptual overview



Inge Stupak & Tat Smith

Overview

- Challenge
- The nature of trust
- The role of data and data analysis for acceptance
- The role of governance approaches for acceptance
- The feasibility of governance approaches
- The space within which this workshop takes place 

Challenge



Environmental Research Letters

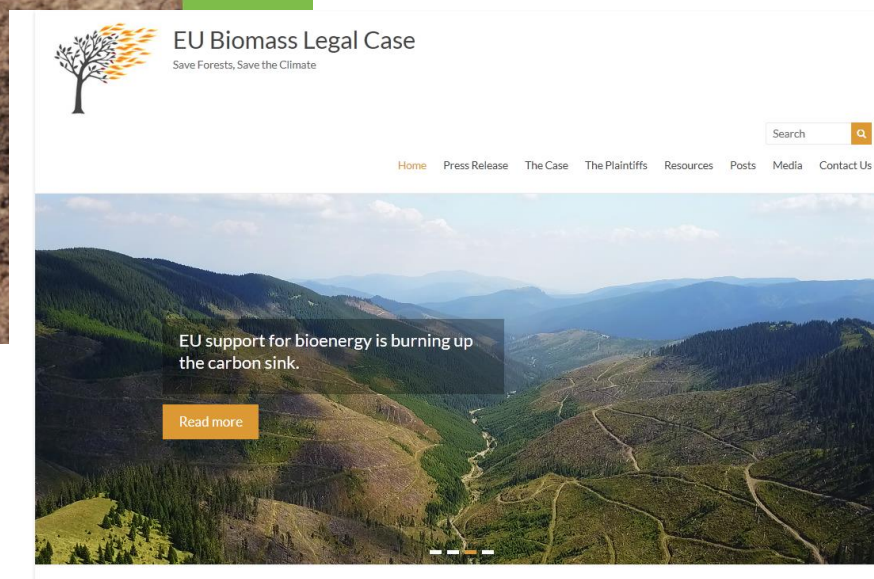
LETTER

Not carbon neutral: Assessing the net emissions impact of residues burned for bioenergy

Mary S Booth^{1,2} 

¹ Partnership for Policy Integrity, Pelham, Massachusetts, United States of America

² Author to whom any correspondence should be addressed.



Trust

Making yourself vulnerable to others



Principal-agent relationships

- An arrangement in which one entity, the “**principal**”, appoints another, the “**agent**”, to act on its behalf
- The relationship between the principal and the agent is called the “**agency**”.
- The principal trusts that the agent do not have a **conflict of interest** in carrying out the act
- There is no major **asymmetry** in access to information between principal and the agent
- The agent cannot carry out **unobserved actions**

Types of agencies

Personal
engagement

Social license to
operate

Social trust in
institutions

Receiving → (agent)	Individuals, the public		Economic operators in the market		Governmental institutions	
Granting ↓ (principal)	Type of trust granted to individuals by...	Strategies of individuals to receive trust of....	Type of trust granted to operators by....	Strategies of operators to receive trust of...	Type of trust granted to governments by...	Strategies of governments to receive trust of...
Individuals, societal actors	Inter-personal trust to depend on the other	Agreements on how to work together	Social License to Operate	Corporate Social Responsibility (CSR) policies	Institutional trust, obey e.g. to tax payments	Effectiveness of government, democracy
Economic operators in the market	Provisioning of goods and services	Resignation from naming and shaming campaigns	Trust to collaborate within the supply chain	Agreements on how to work together	Economic prosperity, tax payments	Stability of business environment, effectiveness of government
Governmental institutions	Freedom, equality, welfare	Law-abiding behavior	Public license to operate (SLO)	Law-abiding behavior	International relations and collaboration	Agreements on how to work together



Our focus



Also critical

Social trust & licence to operate

- Institutional trust is the belief that institutions and enforcement officers use their power in appropriate ways; individuals are willing to obey the rules

Jackson & Gua (2016)

- Social License to Operate (SLO) is the belief that a company and its local operations are appropriate; individuals are willing to accept the impacts

Boutilier & Thomson (2011)



Motives to grant trust and legitimacy

Category	Motivation or process leading to grant of legitimacy or trust, based on perception of the following:	Scholars				
		Aristotle	Max Weber	Mark C. Suchman (1995)	Thomson & Boutilier (2011)	Burlea & Tomé (2013)
Principal-agent		Individual-individual	Individual-public authority	Society-institution	Stakeholder-corporation	Individuals-organisations
Altruism	Enduring mutual regard for each other's interests.	Friendship due to goodness			Institutionalized trust, identification	Affective trust
	Reciprocity in interactions				Interactional trust	Optimistic or mutual trust
Observation	Coherent, understandable, and meaningful activities			Cognitive legitimacy		
	Competence, rule of law		Rational authority			Competent trust
Value	Shared values and perceived benefits for society			Moral legitimacy	Socio-political legitimacy	
	Perceived high level of personal virtuousness and integrity		Charismatic authority			Referential trust
Tradition	Tradition (feudalism, religion)		Traditional authority			
	Family or group identity					Identitary trust
Egoism, hedonism	Achieving self-interested benefits	Useful friendship		Pragmatic legitimacy	Economic legitimacy	Opportunistic trust
	Achieving pleasure	Pleasant friendship				

Strategies to achieve trust and legitimacy

▪ Aristotle's modes of persuasion

- **Pathos** - appeal to emotions (appearance)
- **Ethos** - appeal to authority, credibility or charisma (reputation)
- **Logos** - appeal sense of logic through data, facts and figures (performance)
- "Kairos" – choice of a time and space where the audience will be open to the message.

▪ Suchman's model of strategies to achieve legitimacy

- **Conforming strategy** – conform to selfish needs, moral ideas or external sources of authority
- **Manipulative strategy** - manipulate needs by advertisement, undertake activities with spill-over effects to moral ideas, or promote legitimacy of activities' as if already taken for granted.
- **Informative strategies** - get the word out there, explain how activities match up with societal concerns, or link to activities that already possess cognitive legitimacy

Trust and suspiciousness as two dimensions rather than contrasts

- they may occur in the same relationship

	Low levels of suspiciousness	High levels of suspiciousness
High levels of trust	• Trust by normative congruence • Poor incentive for monitoring and control or less is needed • Prone to emotional and ideological manipulation	• Trust by verification • High incentive for continuous monitoring and control
Low levels of trust	• Casual and limited interdependence • Low incentive for monitoring and control	• Harmful motives assumed and potentially paranoia • Monitoring and control is disbelieved • Believe in ideology or “pathos” and charisma or “ethos” and disbelieve in data or “logos” is common. • Prone to emotional and ideological manipulation

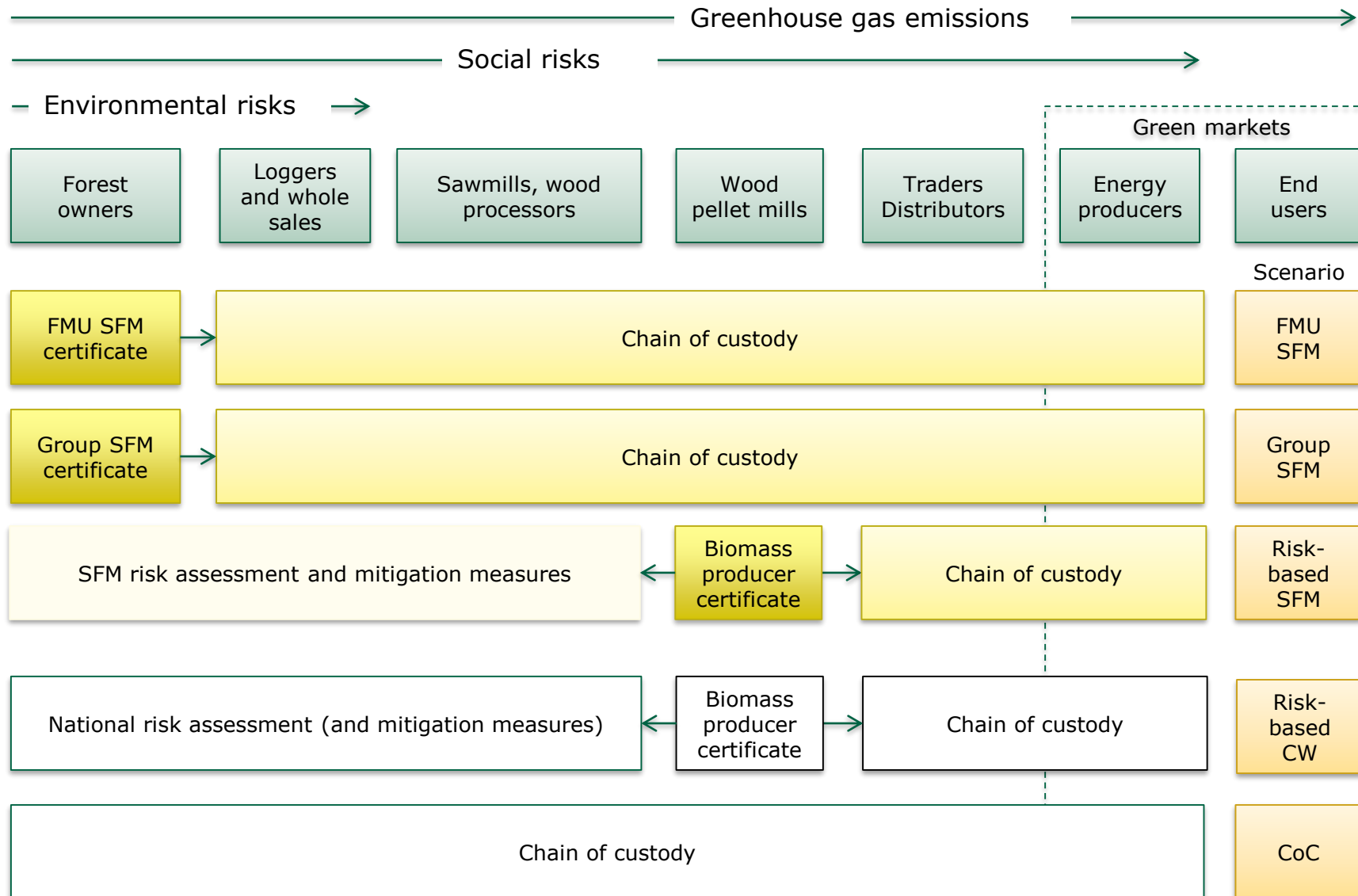
Soundness of data and data analysis

	High quality data / low level of data manipulation	Low quality data / high levels of data manipulation
High level of soundness in data interpretation	• Good basis for trust	• No basis for trust
Low levels of soundness in data interpretation	• No basis for trust	• No basis for trust

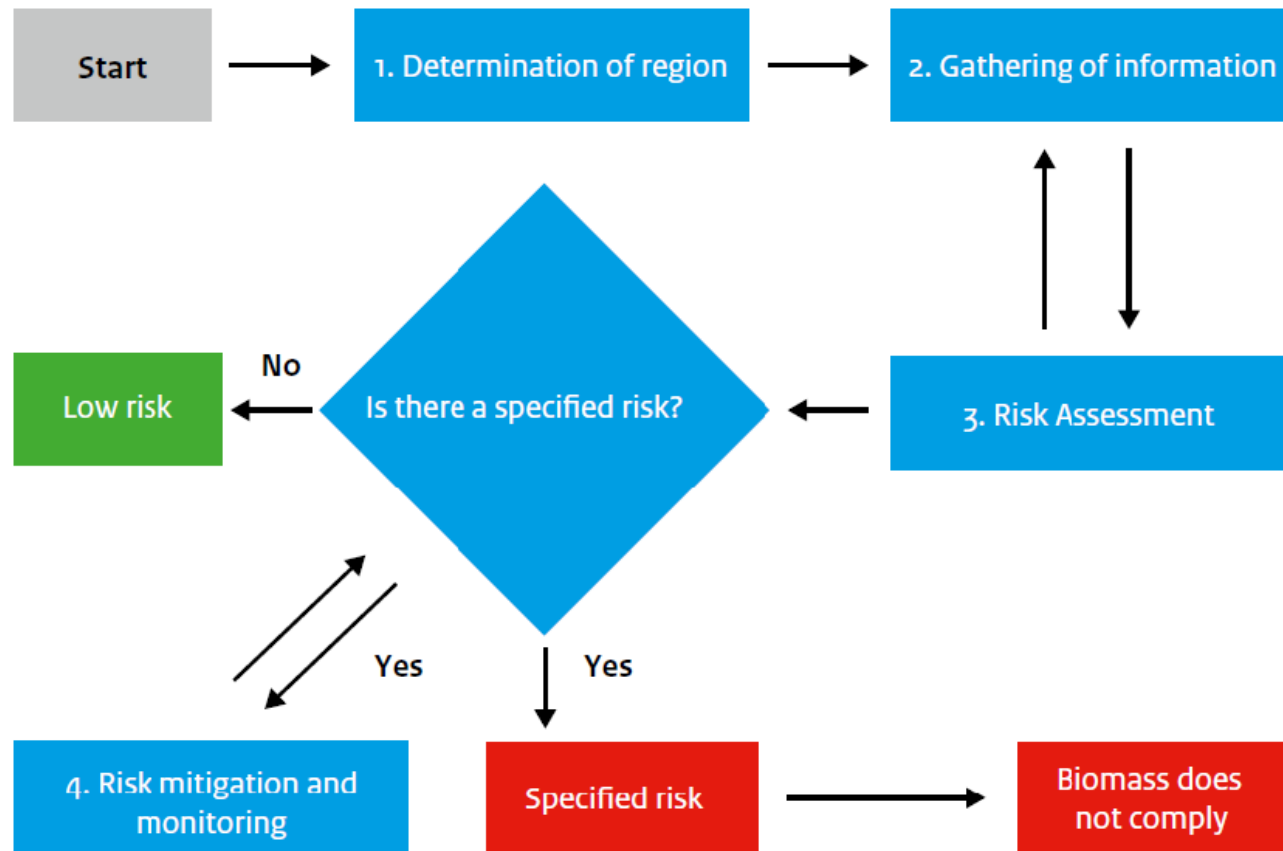
Transparency - high quality data and sound data analysis can also be prone to error

	Null hypothesis is TRUE	Null hypothesis is FALSE
Reject null hypothesis	Type I Error (False positive)	Correct outcome! (True positive)
Fail to reject null hypothesis	Correct outcome! (True negative)	Type II Error (False negative)

The wood pellet supply chain



Procedure of a risk-based system



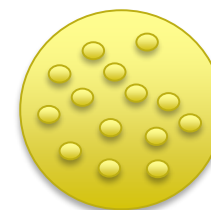
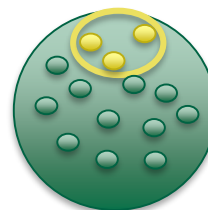
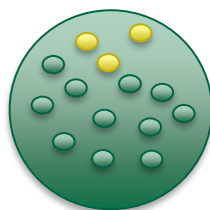
Risk assessment element in all systems



Risk assessment
of element of it



Area or FMUs
not addressed



	FMU level certification	Group certification	Risk-based certification*
High auditing priority	Sustainability criteria that entail the largest risk in a certified property	Types of forest owners that entail the largest risk in certified groups of properties	Sustainability criteria with specified risks for the whole forest area
Low auditing priority	Other sustainability criteria in the FMU	Other types of forest owners	Other sustainability criteria
No auditing	Uncertified properties	Uncertified properties	-
Level of formalization	No formalisation (?). Embedded in auditor education?	Some degree of formalization (?). Random or stratified selection of units to be audited each year?	Formalised risk assessment procedures

Elaboration by certification schemes and auditors during this workshop will be appreciated...

Auditing of the forest management

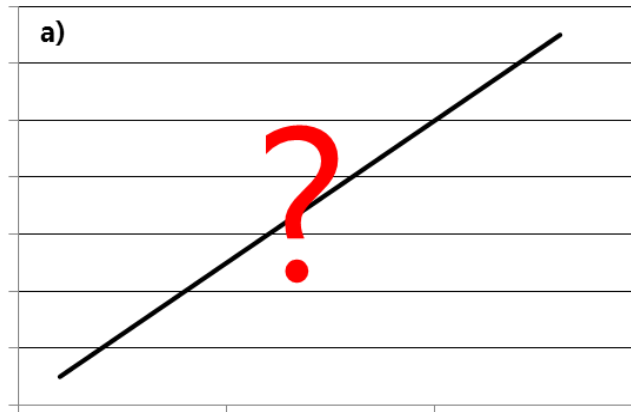
	FMU level certification	Group certification	Downstream risk-based certification
Coverage	The whole certified supply chain	The whole certified supply chain	The whole certified supply chain
Field auditing	Third party auditing at the certified unit annually	Third party auditing of some units every year, but individual units less frequently, maybe infrequently	Auditing of risk mitigation measures implemented at the forest management unit, possibly involving first party auditing several times per year, second party auditing 2-4 times per year, and third party auditing once per year.
Desk audit	Third party auditing at the certified unit annually	Third party auditing of some units every year, but individual units less frequently, maybe infrequently	Third party one-off auditing of the national or risk assessment + revisions and re-auditing after some years

Specification by certification schemes and auditors during this workshop will be appreciated...

Within this space:

- what is most effective and legitimate?

Effectiveness and level of legitimacy and trust

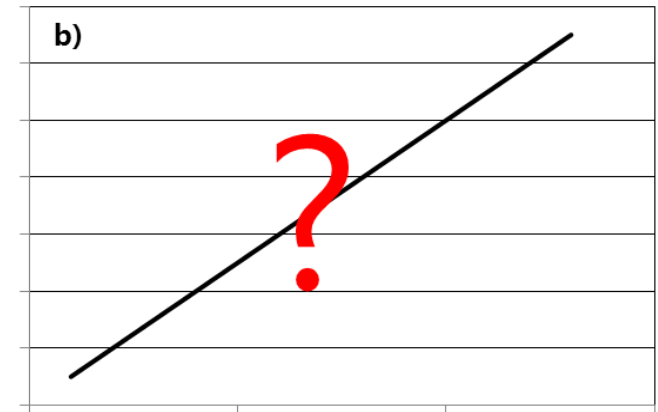


Voluntary -----> mandatory standards

Prescriptiveness of requirements ----->

Risk-based ----> management unit level verification

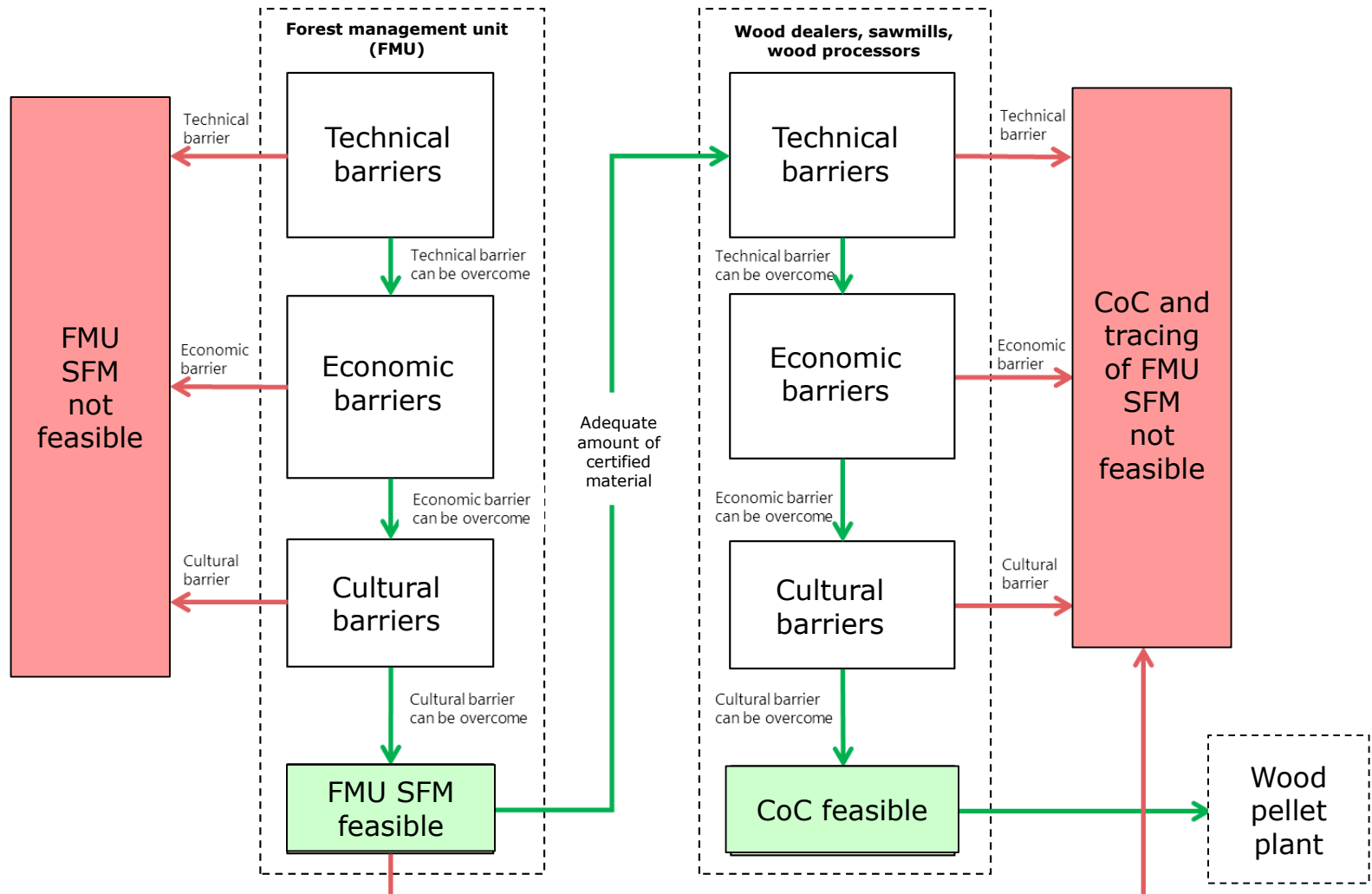
Effectiveness and level of legitimacy and trust



Resources for auditing ----->

Resources for mitigation of risk ----->

Within this space: what is feasible? FMU-level certification



Feasibility of substantially increasing FMU-level and risk-based certification

Scenario	South-eastern US		Baltic countries	
	By 2020	Long-term	By 2020	Long-term
FMU SFM	-	*	*	**
Risk-based SFM	**	***	***	****
Risk-based CW	**	***	****	*****
CoC	****	*****	****	*****

- not feasible

* not likely that it is feasible, but also not completely excluded

** some small chance that it is feasible, but probably not at a scale that is far above today's use

*** feasible, but probably not at a scale that is far above today's use

**** feasible, also above today's scale of use

***** feasible, well-implemented in the whole country/region

The amount of sustainable biomass available for energy will depend on:

- The comprehensiveness of the chosen standards and requirements
- The type of chosen verification system and the strategies for its implementation
- The data available to show compliance
- Short and long term?

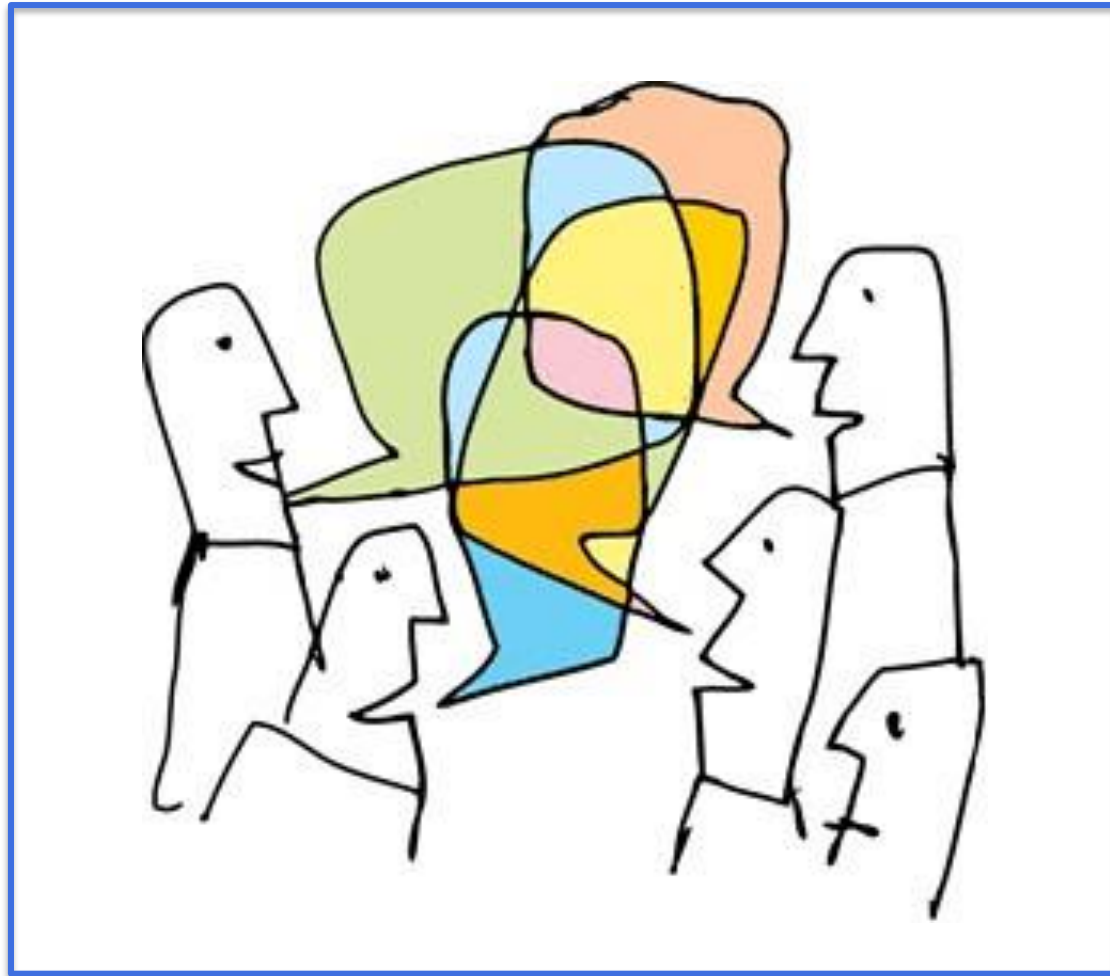
In this workshop we address...

- Social trust in institutions and social license to operate
- The space with generally high levels of trust and suspiciousness at the same time
- Ways to increase legitimacy and trust in governance systems for sustainability of bioenergy by development of monitoring, data, information and verification system design
- Principals who grant cognitive and competent legitimacy
- Agents (governance systems and economic operators) that strive to achieve this legitimacy and trust through informing strategies based on sound data and data analysis

Within this space, we explore opportunities to...

- Increase the availability and use of sound data and data analysis to address sustainability impacts of bioenergy
- Improve effectiveness, efficiency and general feasibility of governance systems to document sustainability impacts of bioenergy

Data and governance will not make it alone



Thank you!

IEA Bioenergy



Contact Details

Inge Stupak

ism@ign.ku.dk

Tat Smith

tat.smith@utoronto.ca