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Inter-task project: Measuring, governing and gaining support for sustainable bioenergy supply chains

## Positions, perception and vision of stakeholder groups towards bioenergy: Key Results

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## **Overall Project: Three Objectives**

- O1: Provide overview of calculation methods & tools to assess sustainability of various biomass and bioenergy supply chains and discuss needs, possibilities and limitations of a global, uniform/harmonized framework
- O2: Compare and assess effectiveness and efficiency of a variety of approaches on sustainability governance of biomass supply chains
- O3: Understand positions and underlying motivations of stakeholder groups relative to their perceptions of bioenergy and inform dialogues/discussions to avoid misconceptions about bioenergy

The webinar will present O3 results.

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## **Objective 3: Approach and Scope**

### **I. Supranational stakeholder** case study:

- Online survey & panel debates on survey results
- Interviews with supranational stakeholders

#### II. Dedicated regional case studies:

- Biogas in Germany
- Forestry in Canada (Quebec) & US Southeast
- Agriculture in USA (State of Iowa)





# Positions, perception and vision of supranational stakeholders (or stakeholder groups) towards bioenergy

Mai-Moulin, T., Fritsche, U.R., Junginger, M. Full paper submitted for publication to Energy, Sustainability and Society, November 2018



## I. Online Survey: Participation





## I. Results: Source of Information – online survey





## I. Results: Suitable Feedstocks – online survey



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## I. Results: Barriers – online survey



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## I. Results: Challenges – online survey

Strongly agree



Lack of general societal acceptance Undesired environmental impacts cannot No contribution to economic growth be avoided



## I. Results: Drivers – online survey



## I. Results: How to gain (more) support – online survey





Sustainability requirements should be mandatory for all biomass types regardless of end use Current sustainability certification schemes/systems for bioenergy are transparent and effective Policy makers decisions about bioenergy should be more based on scientific information



## I. Summary: Key Points – online survey

- Awareness: General public not well aware of bioenergy
- Source of information: academia/consulting most trusted but least used
- Feedstock mobilization: energy crops on agricultural land not favored, more details on iLUC measurements needed
- Sectoral views (biochemicals, biomaterials) different: competition for feedstocks, subsidies for bioenergy
- Key barriers/drivers, and challenges:
  - General public acceptance

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- Sustainabilility requirements (GHG, SFM, social...)
- Market and policy uncertainty
- Influence: role of general public more recognized

## I. Summary: Key Points

#### **COMMUNICATION WITH SUPRATIONAL STAKEHOLDERS:**

- Each supernational stakeholder has different viewpoints, perceptions and their influence is therefore not similar
- Most of stakeholders have positive view (one neutral, two no support) on bioenergy sector

## A NUMBER OF AGREED POINTS (Roundtable dialogues & suprational stakeholders):

- > Transparency is important: information sharing, sustainability reporting
- > Collaboration between sectors, understand the complexity
- > **Policy:** consider various sector focuses & investment confidence
- Influence: Scientific community more involved in dialogues, providing scientific proof to NGOs and policy makers; policy makers have power to make changes



#### Sketch of stakeholder interest-influence matrix for bioenergy

based on Sutor et al. (2018) Don't hate the player, change the rules/ Stakeholder Perceptions and Influence in the German Biogas Sector (under review)



## I. Vision ahead

#### 1. Short term

- Sustainability criteria (to be improved; mandatory preferred) & measuring (transparent; contextualized indicators)
- Technological advancement (processing) & de-risk investment
- **Communication** with external stakeholders for mutual solutions
- Include stakeholders underrepresented in discussion (e.g. labor unions...) and highlight positive effects (e.g. rural income)
- **Policies** taking broad picture of risks and opportunities; linkages of climate & energy

#### 2. Medium & long term

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- Advanced biofuels: technologies & deployment
- Monitoring & measuring sustainability: flexible on local level, particularly for developing regions
- **Collaboration:** more efficient between sectors using biomass
- **Biomass use**: level playing fields for all sectors

## **Regional case studies**



## II. Case 1: Biogas in Germany



9,000 biogas for CHP plants (4,000 MW ):

(a) municipal & organic waste(b) agricultural biomass

Study aims:

- improve understanding and perception of sustainability in the biogas sector
- and consequently to enhance its governance.

supportive

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unsupportive

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neutral/ indecisive

## II. Case 1: Biogas in Germany



#### Level of governance and compliance

Scale: 1- fully agree, 2 - agree, 3 - neutral, 4 - disagree, 5 - fully disagree)



Source: Sutor et al. (under review) Don't hate the player, change the rules: Stakeholder Perceptions and Influence in the German Biogas Sector

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## II. Case 2: Forest Biorefinery in La Tuque, Quebec, CA





#### **Complex forest and social ecosystems**

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- Remote region (>200 km from Quebec main cities)
- Public forests under ecosystem-based management (high level of naturalness)
- Communities historically built on the development of natural resources (hydropower, forestry)
- Active forest industrial network of sawmills and pulpmills
- Presence of First Nations with deep roots into the territory

## II. Case 2: Forest Biorefinery, La Tuque, Quebec, CA



#### Positive economic expectations ranked highest

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Source: Thiffault et al. (in preparation)

## II. Case 3: Cellulosic-based ethanol, Iowa, the US

💐 Oak Ridge National Laboratory

156 https://doi.org/10.1016/i.biombioe.2017.09.016

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#### Stakeholders identified priority indicators of sustainability



#### II. Case 4: Producing wood based pellets, the SE, US \*Oak Ridge National Laboratory

#### Background on wood pellet production in the southeastern United States (SE US)

- Pellets <3% of total wood products
- Provide needed rural jobs
- Mitigate climate change by replacing coal & enhance carbon sequestration in forests via improved management

#### Mail survey

 Sample focused on private owners of forest lands in regions that export pellets to the EU

#### Results

- Families have diverse reasons for owning forest
- Owners are willing to provide biomass for pellets if:
  - Better prices are offered
  - Technical assistance is provided
  - Risks of fire & disease are reduced
- Land owners expect pellet markets to increase
  - Income for forest owners, regional economic growth
  - Use of best management practices (BMPs)
  - Forest productivity



Sources: Hodges et al. (In review) Opportunities & attitudes of private forest landowners in supplying woody biomass for renewable energy. Kline et al. 2018. The importance of reference conditions... In World Biomass 2018-2019 (pp 82-86); DCM Productions U.K.

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## Recommendations

- **Role and modes of communication** in creating trust and confidence among actors (and role of researchers in this process) need to be elaborated more: which role and modes are productive, and on which level (local/regional, national, international)?
- Based on own experiences of the authors, *supranational* stakeholders should have more trust in local communities; if they already have trust in their own processes, practices, certification systems and professionals
- The extent to which *sustainability standards and respective certification* promote and incentivize continuous improvement should be further investigated
- Monitoring data at all levels is useful for documenting sustainability of bioenergy production and use and should be part of the assessment and communication with stakeholders

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## Recommendations

There is **no one single approach to assessing progress toward sustainability** in any particular setting, but there are common threads. These general attributes include:

- active stakeholder engagement throughout the process
- transparent sharing of information about the social, economic, and environmental costs and benefits
- ongoing monitoring
- and working toward identifying and implementing better practices

## Outlook

Based on the InterTask project results, IEA Bioenergy initiated the new Task 45: "Climate and sustainability effects of bioenergy within the broader bioeconomy" <u>http://task45.ieabioenergy.com</u>

Part of future T45 work will be to actively address the "sustainability governance" issue in a collaborative multi-level and multi-stakeholder approach, as indicated below.





## Thank you for your attention!

#### More information:

http://itp-sustainable.ieabioenergy.com/

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#### Disclaimer

Material on US case studies (slides 14-15) is based on work supported by the US Department of Energy under the Bioenergy Technologies Office (BETO), and performed at Oak Ridge National Laboratory under contract number DE-AC05-00OR22725. The views and opinions of the author expressed herein do not necessarily state or reflect those of the United States Government or any other agency. The US Government makes no warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

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## **III. Questions**

#### You are welcome to ask questions using the chat window

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