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# Regulating sustainable bioenergy – are we on the right track?

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# Outline

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- Why bioenergy?
  - Bioenergy policies
  - Sustainability considerations
- Regulatory approaches to ensure sustainability
  - Legal challenges
  - The EU sustainability criteria for biofuels
  - Other regulatory options?
- "Non-regulatory" approaches?
- On the right track..?

# Why bioenergy?

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- Overall arguments:
  - Reduce reliance on fossil fuels
  - Mitigate climate change
  - Underlying agendas (bio-industry, agricultural subsidies)?
- Defining "bioenergy":
  - Energy production based on biological material (biomass)
  - Types of feedstock: food crops, energy crops, wood, residues, waste
  - Types of product: liquid, gaseous, solid
  - Types of use: transport, heating, electricity
- NB: increased interest in biomass for other purposes (the biobased society)

# Bioenergy policies...(and pressures)

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- International Energy Agency (IEA, 2008):
  - Potentially more than 20 % bioenergy of world energy supply by 2050
  - = doubling of the total amount of plant material harvested from the planets land (EEA SC, 2011)
- EU (Energy Package, 2008):
  - 20 % RE by 2020 (10 % RE in transport by 2020)
  - 10 % "biofuels" require 4,5 mio ha land (= DK)
- DK (Energy Agreement, 2012):
  - 35 % RE by 2020 (primarily wind, biogas a.o. biomass)

# Sustainability considerations

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- Environmental, land use and climate issues (biodiversity, water, soil, carbon stock balance, fertilisers/pesticides etc.)
  - GHG emissions (feedstock/product dependent)
  - Direct land use changes (dLUC)
  - Indirect land use changes (iLUC)
- Social issues
  - Fuel for food debate
  - Local communities, production etc.

# Regulatory challenges

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- Addressing complex sustainability issues
  - How to regulate iLUC?
  - How to balance different arguments and concerns related to different types of bioenergy?
  - How to make different types of RE supplementary?
- Fragmented regimes, e.g.
  - Trade, energy, climate, environment, agriculture
  - International, regional (EU), national
- Transnational dimensions
  - Ensuring "sustainable" production in other countries, e.g. EU biofuels sustainability criteria

# EU 2009 Renewable Energy Directive

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- 20 % renewable energy (RE) by 2020
- Min. 10 % RE in transport by 2020
- Sustainability criteria for biofuels (RED art. 17)
  - To be counted within the 10 % target (or receive financial support)
    - Complex "compliance" system
  - Min. GHG emission savings: 35 % (50 % by 2017)
  - "No go areas": high biodiversity value land, high carbon stock land (e.g. wetlands), peatland
  - NB: iLUC not (yet) included in the criteria
- Sustainability criteria for other bioenergy sources? pending ..(MS criteria and business schemes)!

# EU "compliance" system

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- Compliance assessment at member state level
- Economic operators shall arrange for an adequate standard of independent auditing by
  - Voluntary schemes (recognised by the Commission),
  - Bilateral or multilateral agreements (with the EU)
  - Adequate information and documentation



# Are the EU sustainability criteria appropriate?

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- Addressing the complex sustainability issues?
  - GHG savings have been questioned
  - How to incorporate iLUC?
    - Calculation models (GHG) – high uncertainty
- Fragmented or integrated regime?
  - Designed to accommodate WTO concerns, but
  - Will the complex certification scheme work?
- Transnational dimensions
  - "eco-imperialism" (Lin, 2011)?

# Regulatory options?

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- Direct regulation, e.g.
  - Product restrictions
    - NB: WTO and trade law
  - Protected areas/habitats or cultivation restrictions
    - NB: national sovereignty
- Indirect regulation, e.g.
  - Economic (dis)incentives (subsidies, taxes etc.)
  - Certification schemes
  - Labelling schemes
  - Sustainability criteria

# Non-regulatory options?

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- Purely voluntary certification schemes
  - Avoid “uniform” definitions of sustainability
- Information and transparency
  - Provide reliable information about bioenergy and sustainability

# What land use changes can we regulate?

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- ❑ **Conversion of food crops to "fuel" crops**
  - Discourage via market mechanisms
- ❑ **Conversion of uncultivated land to cultivated land**
  - Difficult to address via market mechanisms
  - Direct protection of valuable areas



# On the right track ...?

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- ❑ **Emergence of new (transnational) modes of regulation (e.g. EU sustainability criteria)**
  - May encourage sustainable bioenergy if carefully designed
- ❑ **Need to reconsider "simple" promotion of bioenergy**
  - Promote sustainable bioenergy only ("additional" biomass and waste)
- ❑ **Need to reconsider other regulatory options re. non-GHG concerns, e.g.**
  - Strengthen protection of valuable resources (biodiversity, land, water, soil and air)
  - Revitalise national and international environmental law!