

# Supplying Sustainable Bioenergy: The Biomass Futures Sustainability Indicators

**Uwe R. Fritsche**

Oeko-Institut, Energy & Climate Division

from April onwards:

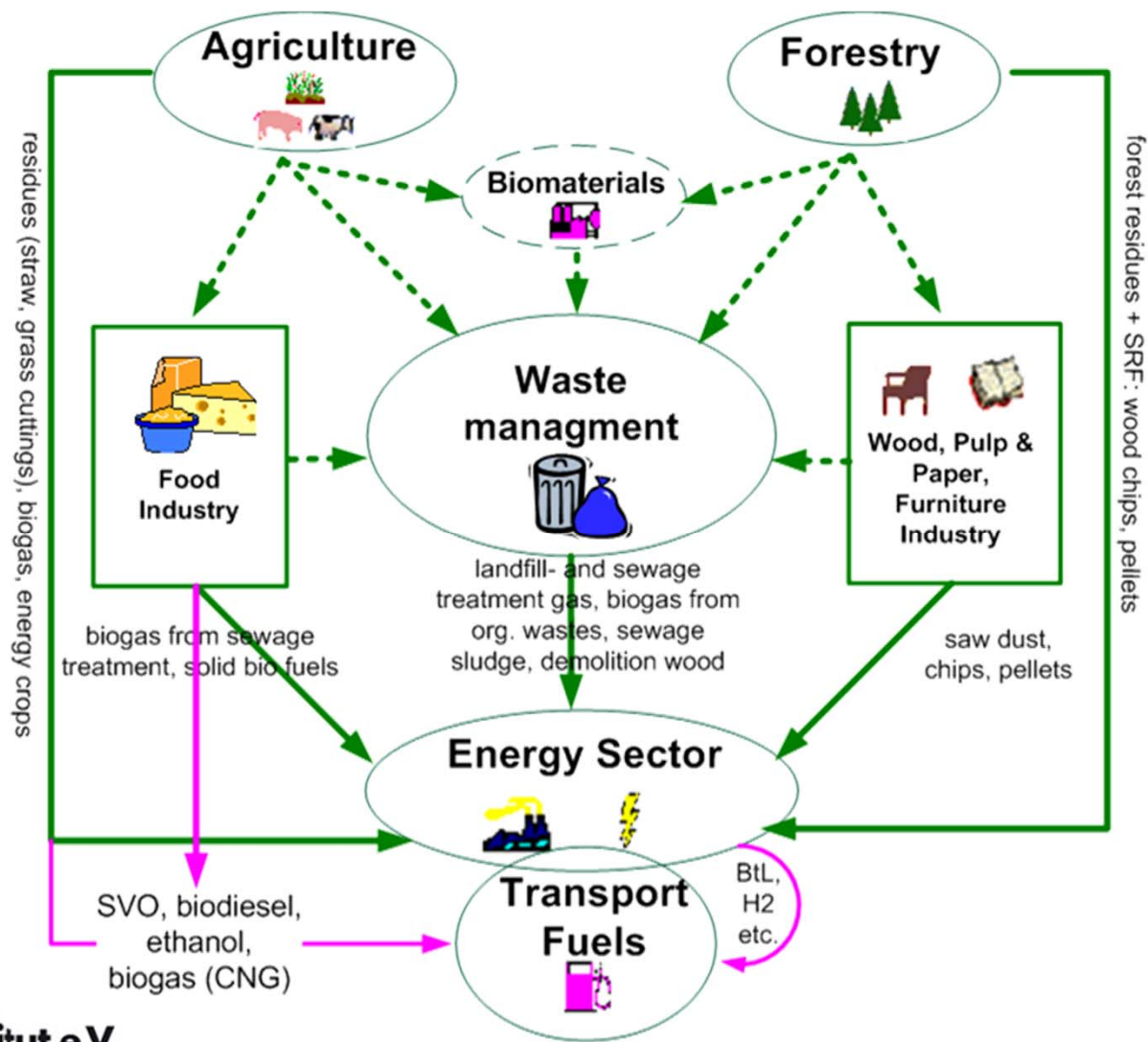
**IINAS - International Institute for Sustainability Analysis and Strategy**

presented at the Biomass Futures Lunch Workshop

“Designing Policy to meet Europe’s Future Bioenergy Needs – How can the Biomass Futures project inform future European bioenergy policy?”

20 March 2012 at the European Parliament, Brussels

# Consider all Biomass Flows



## What's out there (global)?

- **ISO:** Project Committee created, but will take at least until 2013
- **GBEP:** national indicators from Sustainability Task Force Nov. 2011; now piloting & capacity building
- **GEF:** study on biofuels completed, to be published
- **ISCC, RSB:** extension to all bioenergy planned
- feedstock-specific: BSI, FSC, PEFC, RSPO, RTRS...

# Where's the EU?



EUROPEAN COMMISSION

Brussels, yyy  
COM(2010) XXX final

**REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN  
PARLIAMENT**

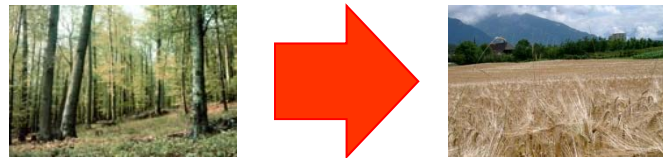
**on sustainability requirements for the use of solid and gaseous biomass sources in  
electricity, heating and cooling**

SEC(2010) 65  
SEC(2010) 66

- Conclusion: **voluntary implementation** by MS, but using RED methodology
- Report from COM still pending, but much discussion

## Key Challenges

- **Critical environmental issues**
  - **indirect** LUC impacts on GHG balance, and biodiversity, even non-food crops on **arable** land



- **resource use** efficiency (land, residues)
  - Agro- and forest biodiversity: can be positive **or** negative (depends on location, practice, scale...)
  - Longer-term: transgenic plants (**GMO**)?
- **Food security (global)**

## What we propose

- **Sustainability criteria and indicators:**
  - resource use efficiency requirements for bioenergy crops (land) and residues/wastes (conversion)
  - GHG emissions from direct + indirect land use change (LUC)
  - biodiverse cultivation systems, extraction rates for of residues
  - air pollutants (reduction levels), soil (traffic-light maps), water (buffer zones)
  - social: global food security (new FAO approach)
- **Coherent set for all bioenergy, i.e. electricity, heat, transport - and perspective for bio-materials**

## Key criteria & indicators

- **efficiency: land (>100 GJ/ha), residue (> 60%)**
- **GHG (> 60% reduction), including iLUC**
- **biodiversity:** beyond “no go” areas – require agro-biodiverse cultivation, restrict forest biomass extraction, no GMO
- **soil:** maps of nutrient depletion risk (“go”)
- **water:** buffer zones, restrict agrochemicals
- **social:** global **food** security is key (FAO!)

# Biomass: Cascading!

## Biomass crops



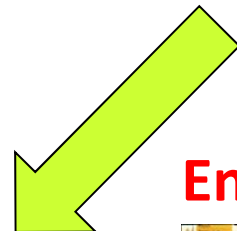
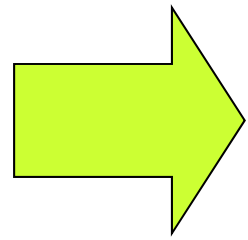
## 1st priority: material use



## Residues/wastes



## End of cascade: energy use





# More information

## Sustainable Bioenergy: Key Criteria and Indicators

draft working paper of the

**BIOMASS FUTURES**

project funded by



## Criteria and Indicators for Sustainable Solid Bioenergy: Workshop Series and Input Paper

A joint initiative with



in collaboration with



sponsored by



Your inputs welcome: [uf@iinas.org](mailto:uf@iinas.org)