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Assessing impacts of policy changes on sustainability of forest land use in Europe
EU's biofuel targets questioned

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BRUSSELS (Reuters) - The European Union raised the possibility on Thursday it might reconsider strategy on biofuels over concerns the bloc's approach was pushing up food prices and doing more harm than good to the environment.

"We're not excluding the possibility that we'll have to amend or revise our goals," said Prime Minister Janez Jansa of Slovenia, which holds the rotating EU presidency. "We have to address these concerns by relevant analysis."

EU leaders pledged last year to boost the share of biofuels produced from crops for use in transport to 10 percent by 2020.

But some environmentalists and United Nations agencies say rising production of biofuels has helped drive up food prices, distorted government budgets and led to deforestation in southeast Asia and Brazil.

Scientists also say some kinds of biofuels generate as much carbon dioxide (CO2) as the fossil fuels they replace.

"Quite certainly there will be more analysis," Jansa told reporters at the end of the first day of an EU summit. He said while a revision of targets could not be ruled out, he had not yet heard any arguments in favor of doing so.

The executive European Commission has sought to overcome objections by proposing strict "sustainability criteria" for biofuels marketed in the EU.

These would require a substantial CO2 saving and guarantees that biofuels did not come from forested areas. A working group of EU states is studying how to make such criteria watertight.

The Commission says that without a binding target, industry would have no incentive to produce biofuels.

Danish Prime Minister Anders Fogh Rasmussen told reporters: "Yes we..."
Introduction

Objective:

• to include all three dimensions of sustainability into the European Forest Information SCENario model (EFISCEN)

• analyse impacts of bio-energy production from forest biomass and impacts of forest biodiversity protection on sustainability of forest land use
EFISCEN modelling framework

- Wood demand
- Management strategy
- Forest area change

Volume-class

Age-class
Indicators

- Indicator selection criteria
  - Relevant indicators (e.g. MCPFE)
  - Compatible with EFISCEN structure

- Selected indicators:
  - Deadwood
  - Carbon stock
  - Fellings and increment
  - Biomass revenue
  - Workforce
Scenarios

- Baseline: historical wood removals until 2000, EFSOS projections thereafter (Kangas and Baudin 2003)

- Biodiversity: set aside 5% of forest area and apply management restrictions (Verkerk et al. 2008) to protected area (baseline demand)

- Bio-energy: residue removal and complementary fellings after 2010 (cf. EEA 2006)
Methods: deadwood

- Methods explained in session 12, room 3094
- Results: ton deadwood mass ha$^{-1}$
Methods: carbon stock

- Method developed by Karjalainen et al. (2003).
  Improvements: ATEAM (Eggers et al. accepted), CarboInvent, CarboEurope

- Results: average carbon stock change over 2005-2030 in ton C ha\(^{-1}\) yr\(^{-1}\)
Average carbon stock change (ton ha\(^{-1}\) yr\(^{-1}\))

**Nordic**

**Baltic**

**(Sub-)Atlantic**

**Central and Alps**

**Mediterranean West and Middle**

**Pannonic and Mediterranean East**

Scenario
Methods and results: biomass revenue

- Roadside timber and residue prices (nat. reports; EUBIONET-II)
- Unit: eur m⁻³ wood overbark and eur ton⁻¹ harvest residues

![Graphs showing biomass revenue in different scenarios and regions]
Methods and results: sector workforce

- Employment in forestry and logging (MCPFE 2007)
- Unit: persons per 1000 m³ harvested wood or residues
Results and discussion

- Normalised indicator impacts in 2030
  - Baseline (2005) = 1
Uncertainties

- Bio-energy scenario represents potentials
- Costs not yet estimated
- Wood revenues: no changes in unit prices of timber and residues (cf. Kallio et al. 2006)
- Sectoral workforce: increasing productivity (Blombäck et al. 2003; Junginger et al. 2005)
Conclusions

- Biodiversity: applying management restrictions to 5% of productive forest area does not affect sustainability at aggregate level
  - Reduction in management intensity in protected forests can be balanced by increasing management in unprotected forests

- Bio-energy: increasing biomass removals for bio-energy production is beneficial for employment and revenues, but negatively affects deadwood and carbon stocks in forests