Sustainability Impact Assessment of the Forest-based Sector

"Impact Assessment of Land Use Changes"
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Kaj Rosén
SKOGFORSK
Outline

- EFORWOOD objectives
- The value chain aspect
- ToSIA - a decision support tool
- Scenarios
- Conclusion
OVERALL OBJECTIVE

- To develop a Tool for the Sustainability Impact Assessment (SIA) of Forestry-wood Chains (FWC)
- By integrating partial chain assessment results of:
  i. forest resource management
  ii. forest to industry interactions
  iii. processing, manufacturing and converting
  iv. industry to consumer interactions
The Forest-based Sector has the potential to play a key-role in the development of a sustainable society!
Several methods are used today to assess the **environmental** impact of the Forest-based Sector

<table>
<thead>
<tr>
<th>Examples:</th>
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<tbody>
<tr>
<td>➢ LCA (Life Cycle Analysis)</td>
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<tr>
<td>➢ Ecological footprint</td>
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<td>➢ Carbon footprint</td>
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<td>➢ Paper Score Card</td>
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None of them allows for a complete analysis of all aspects of sustainability, which is the objective of EFORWOOD!
Tool for Sustainability Impact Assessment

"ToSIA"

Three pillars of sustainability:

- **Economy**
  - Added value
  - Production costs
  - Investment and R&D
  - Total production

- **Society**
  - Employment
  - Wages and salaries
  - Safety and health
  - Education and training

- **Environment**
  - Greenhouse gas balance
  - Energy generation and use
  - Emissions to soil, water and air
  - Recycling and recovery

Examples of indicators
ToSIA is designed for:
identifying hot-spots in value chains that can contribute to improved sustainability
ToSIA is primarily developed to give answers to WHAT IF? - questions.

What if:
- EU introduces new policies on e.g. energy / transport / recycling / habitat protection?
- wooden frames in houses are doubled?
- global market changes?
- oil prices doubles?
This is done by:

- selecting, weighing and analysing indicators of sustainability
- applying indicator values to production processes.
- relating indicator values to the flow of material.
EFORWOOD focuses on the European Forestry-wood Chain
The main EFORWOOD “products”

ToSIA will be available in different versions. They will all look similar, but they differ in functionality:

**ToSIA-FWC**
The basic version of ToSIA used for assessing indicator values for processes along single/multiple FWCs

**ToSIA-E**
This version will include Cost-Benefit, Cost-Efficiency and Multi-Criteria analysis for integrated evaluation of sustainability impacts

**ToSIA web-demonstration**
A web-based application with pre-defined scenarios and a limited number of results
Foreseen applications

- **ToSIA-FWC** will be used to assess the impact on the sustainability indicator values of a limited number of scenarios.

- **ToSIA-E** is used to analyse and evaluate the impacts.

- **Scenarios** will be chosen based on external and internal drivers such as policies, climate change, market changes and innovations.
Reference Futures and Scenarios

The future is not static!
Two Reference Futures

IPCC scenarios A1 and B2 are translated into future changes related to the Forest-based Sector in Europe.

**A1: Free trade**
- Consumer oriented
- High economic growth
- Forest functions separated
- Free trade – cheap raw-material
- Less agriculture, more forests but less harvesting in Europe
- Zero-growth in wood based products

**B2: Regionalised economy**
- Social cohesion and environmental integrity
- Slow economic growth
- High demand for wood based products
- Less trade – high raw-material prices
- Emphasis on energy conservation and bio-energy
- Forest industry play a key role in bio-based economy
- Innovative investments in SFM and FBS
EFORWOOD Scenarios

- **Policy** – climate change / bio-energy
- **Planet** – environmental regulation
- **People** – consumption and lifestyle
- **Profit** – technological development
Example scenario:

Climate change / bio-energy

- Climate Change
- Bioenergy
- Land Use
- Raw-material
- Business
- Products and services
- Consumer
SUSTAINABILITY TRADE-OFFS

LAND USE

BIO-DIVERSITY

BIOMASS

Indicators
Economy
Society
Environment

Indicators
Economy
Society
Environment

”Down stream business”
COMPETITION

Raw-material for bio-energy
FOR LAND

Raw-material for products
FOR CONSUMERS

ToSIA

…makes it possible to analyse consequences on competitiveness of the forest-based sector value chain based on criteria for impact on sustainability
Challenges for EFORWOOD:

- Development of a consistent indicator framework, including the complete value chain.
- Scenario development has to include a variety of aspects (Policy; Planet; People; Profit)
- Considering effects of consumer behaviour on Sustainable Development!
- Getting the acceptance of the FBS of using a tool for SIA
Summary & Conclusions (1)

- The overall purpose of EFORWOOD is to develop a general tool for Sustainability Impact Assessment (ToSIA) of the forest-based sector.

- ToSIA is designed to identify hot-spots in production value chains that can contribute to improved sustainability.

- ToSIA will give answers to WHAT IF? – questions, using scenarios based on external and internal drivers.

- ToSIA is aimed for use by policy makers (EU and national), NGO:s and industry.
ToSIA includes the value-chain perspective in addition to land-use.

ToSIA is a model of which the outcome can be used as a structured background for analysis of proposed changes (discussions/negotiations).
Thank you!

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