Northern ToSIA

Assessing sustainability of forest based activities in rural areas of the Northern Periphery

ToSIA – Tool for Sustainability Impact Assesment

What if ...?

- ...the EU introduces new policies on habitat protection? Can I still go skiing in the forest?
- ... global market changes? Will I get my daily newspaper from China?
- ... oil prices double and the use of bio-energy increases? Do I need to install a pellet-burning oven in my house?

Now there is a tool that can help you with answering these questions: ToSIA.

What is ToSIA?

ToSIA is a tool to show you the way!
The Tool for Sustainability Impact Assessment (ToSIA) is designed to support decision making in relation to the forest-based sector. When ToSIA is utilized in forest-related business and industry, policy makers and researchers are able to analyze impacts of different scenarios compared to the status quo within regional, national, and international levels.

ToSIA analyses environmental, economic and social impacts of changes in forest related value changes. It allows users to analyze various sustainability effects in a balanced and unbiased way.

European Union
European Regional Development Fund
Northern Periphery Programme 2007–2013
Innovatively investing in Europe's Northern Periphery for a sustainable and prosperous future

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EFORWOOD Sustainability Impact Assessment of the Forestry-Wood Chain
Northern ToSIA
EFI

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ToSIA is a flexible tool, based on three concepts:

1. Alternative process chains (baseline and scenarios)
2. Material flow along the chain (e.g. wood, timber products, reindeer meat – all converted to tons of Carbon)
3. Indicators per process and indicators multiplied with the material flow

ToSIA assesses the sustainability impacts of alternative supply chains

Indicators

Economic

- Gross value added
- Production costs
- Resource use
- Total production
- Labour productivity
- Investment, Research and Development
- Trade balance
- Enterprise structure
- Husbandry herd balance
- Loss and compensation of reindeer
- Innovation

Environmental

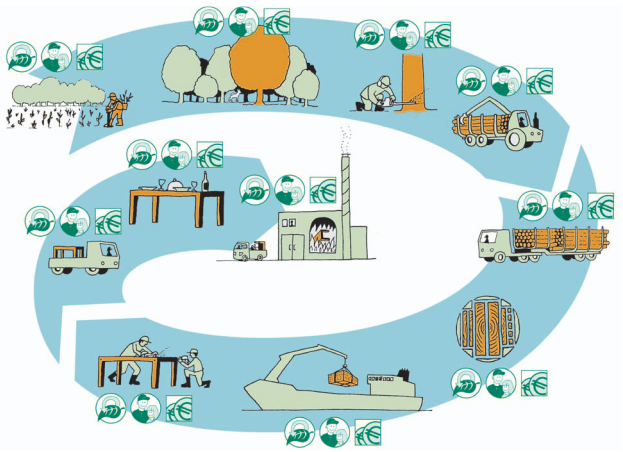
- Energy generation and use
- Greenhouse gas emissions and carbon stocks
- Transport distance and freight
- Forest biodiversity
- Forest resources
- Water and Air pollution
- Generation of waste
- Forest damage
- Soil condition
- Water use
- Foraging resources

Social

- Employment
- Wages and salaries
- Occupational health and safety
- Education and Training
- Consumer behaviour and attitude
- Corporate social responsibility
- Provision of public forest services
- Quality of employment
- Recreational value and Aesthetics

Indicators can be defined and selected to suit any particular study.
Other qualitative and cultural indicators are also possible to include.

How does it work?



Sustainability Impact Assessment (SIA)

Sustainability is a highly subjective and relative concept. Sustainability impacts, however, are objectively quantifiable by comparing changes between a status quo and an alternative.

ToSIA compares alternative process chains, such as forest value chains. Impacts are assessed by calculating changes in material flows and indicators of environmental, economic and social sustainability within each chain. Studies can range from local to international assessments, from detailed "real" company applications to a more generic, aggregated level. The amount of detail can be independently chosen according to the requirements of the user. Case studies in the Northern ToSIA project have evaluated aspects of bio-energy production, reindeer husbandry, forest resource use, and forest industry and tourism.

Scenarios

Scenarios are no predictions, but are used to create a consistent image of a possible future. Each one assumes a distinctly different direction for future developments, including specified drivers, and does not necessarily aim to be realistic.

Material flow

ToSIA tracks material flows from the initialization process(es) throughout the entire value chain, including imports, exports, and losses as defined by the user.

Data integrity is ensured by checking that calculated material inputs and outputs for each process are balanced. Material flows are captured in two measurement units: organic carbon content both within the material (e.g. wood) and in area (e.g. hectares).

Analysis tools

MCA

Multi Criteria Analysis (MCA) is used to evaluate the outcomes of different scenarios. By integrating ToSIA outputs and stakeholder preferences, MCA is able to compare production costs, employment, greenhouse gas emissions, and other aspects.

CBA

Cost Benefit Analysis (CBA) compares the costs and benefits associated to an investment project or a policy, and is measured in monetary terms.

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ToSIA case studies

Cross sector

Malå Case Study

Geographic scope:
- Municipality of Malå (Sweden)

Characteristics:
- Reindeer husbandry
- Forest conservation
- Synergies between forest conservation and reindeer husbandry
- Intensive stakeholder involvement

Scenario analysis:
- Evaluating effects of utilization of forest and grazing land for reindeers

Local policy case

North Karelia Bio-energy Case Study

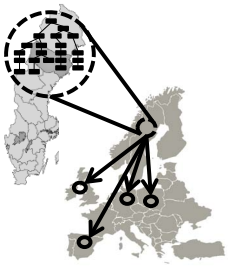
Geographic scope:
- North Karelia (Finland)

Characteristics:
- Increasing bio-energy production and forest usage at regional level
- Intensive stakeholder involvement

Scenario analysis:
- Regional and industrial development
- Customer-specific: increasing usage of bio-energy, in two different size heating plants.
- Local policy: Climate and Energy Program

Forest-defined

Scandinavian Case Study



Geographic scope:
- Västerbotten (Sweden) and connected with the rest of Europe

Characteristics:
- Wood from forests in the area of Västerbotten is followed along the value chain from the resource to the end-users of the wood products in Europe

Scenario analysis:
- Sustainability impacts of tech-nology improvement in sawmills

Local

Scottish Case Study

Geographic scope:
- Cairngorms National Park (UK)

Characteristics:
- Linking national park forest resources with the local timber and recreation industries
- Intensive stakeholder involvement

Scenario analysis:
- Changes in forest management and industry operations
- Involvement of multi-stakeholder groups

Consumer-defined

Iberian Case Study

Geographic scope:
- Iberian Peninsula connected with European wood supply

Characteristics:
- Wood products consumed in Iberia are followed backwards to the forest resources, including wood supply from e.g. South-west France and Scandinavia

Scenario analysis:
- Sustainability impacts of changes in paper consumption

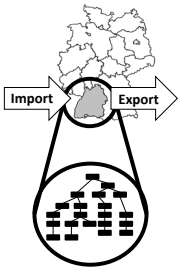
Region

Baden-Württemberg Case Study

Geographic scope:
- Baden-Württemberg (Germany)

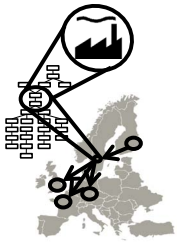
Characteristics:
- All major forest-wood chains (FWCs) within the region are analyzed
- Imports and exports are assessed to/from the border of Baden-Württemberg

Scenario analysis:
- Impacts of bio-energy policies on regional FWC sustainability



Industry-defined

A Potential Industry Case Study



Geographic scope:
- Resource use and product distribution are case-specific

Characteristics:
- Forest resources used by the industry and major distribution channels of the products are considered
- Company assesses the sustainability of its activities for reporting on Corporate Social Responsibility

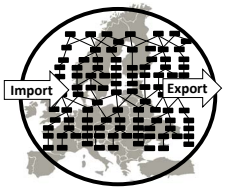
Continent

EU Forest-Wood Chain

Geographic scope:
- EU 25 + 2 (Switzerland and Norway); regionally defined

Characteristics:
- FWCs described at country level
- Trade flows of wood and wood products within Europe included
- Imports and exports are assessed to/from the EU border

Scenario analysis:
- Natura 2000 – increased nature conservation



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