CENTRE FOR SUSTAINABLE CONSUMPTION AND PRODUCTION

Challenges, drivers and benefits of the use of life cycle methods in Finnish companies

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[avniR] 2012 LCA Conference, 6-7 November 2012, Lille, France

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CENTRE FOR SUSTAINABLE CONSUMPTION AND PRODUCTION

Background

- Life cycle thinking (LCT), life cycle assessment (LCA) along with other life cycle (LC) methods are important tools
  - to **assess environmental impacts** of products and services
  - to support **environmental decision making** in companies
  - to help companies to **identify unsustainable strategic decisions**
  - to find out **business opportunities** by taking precautionary actions

- **But** in practice, many challenges hinder the use of LC methods to support companies' environmental management

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The objective

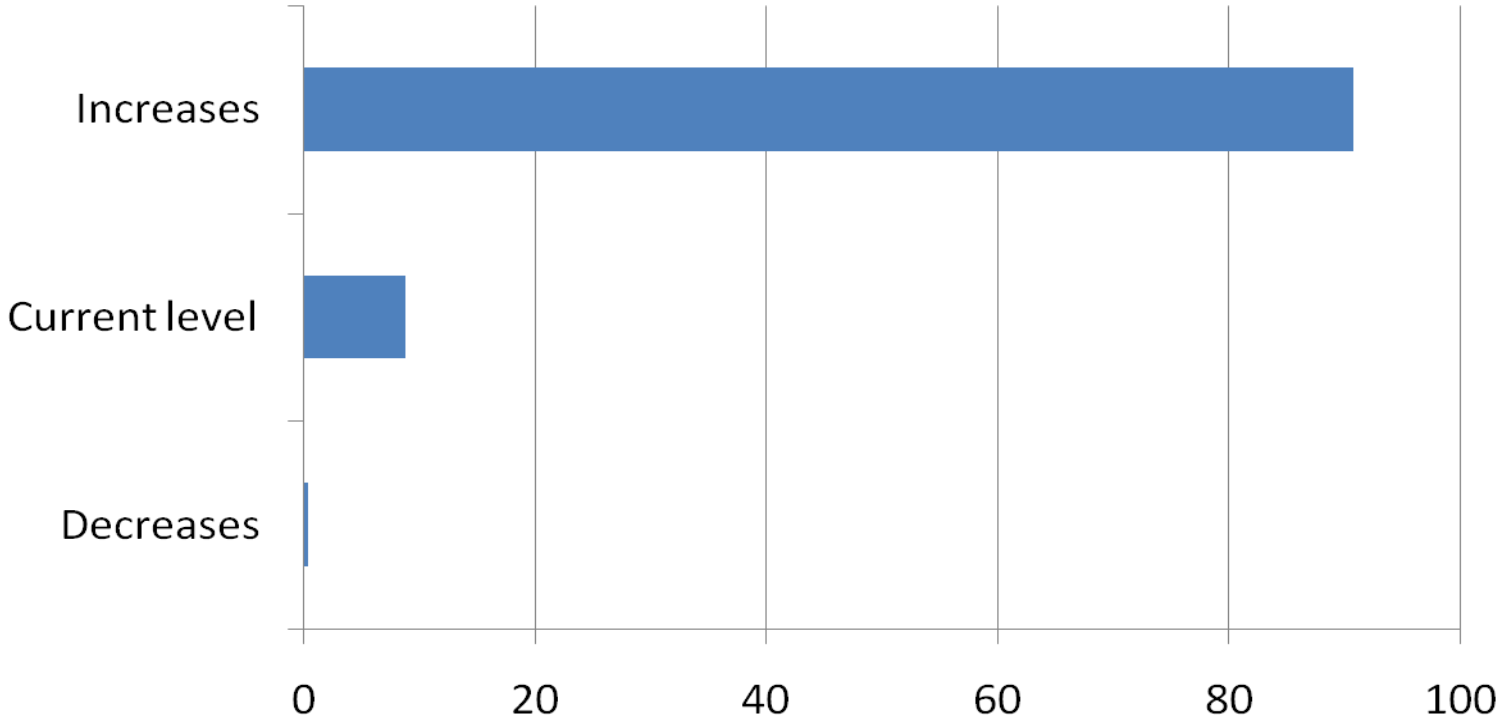
1. Present the main drivers and barriers for companies to apply LCT, LCA and other LC methods in their decision making

2. Boost the **competitiveness** of Finnish companies

3. Offer a starting point for a **national roadmap** to implement the use of life cycle methods in Finnish companies

The focus is on Finnish companies, but the results can be applied widely to support decision making on environmental sustainability

Demand for product oriented environmental management in future



Österlund, H. 2010

- **65%** of respondents can imagine a situation, in which product development process is discontinued due to negative environmental performance
- About **90%** of respondents pose demands on environmental properties to subcontractors
- About **90%** of respondents face demands on environmental properties from their customers

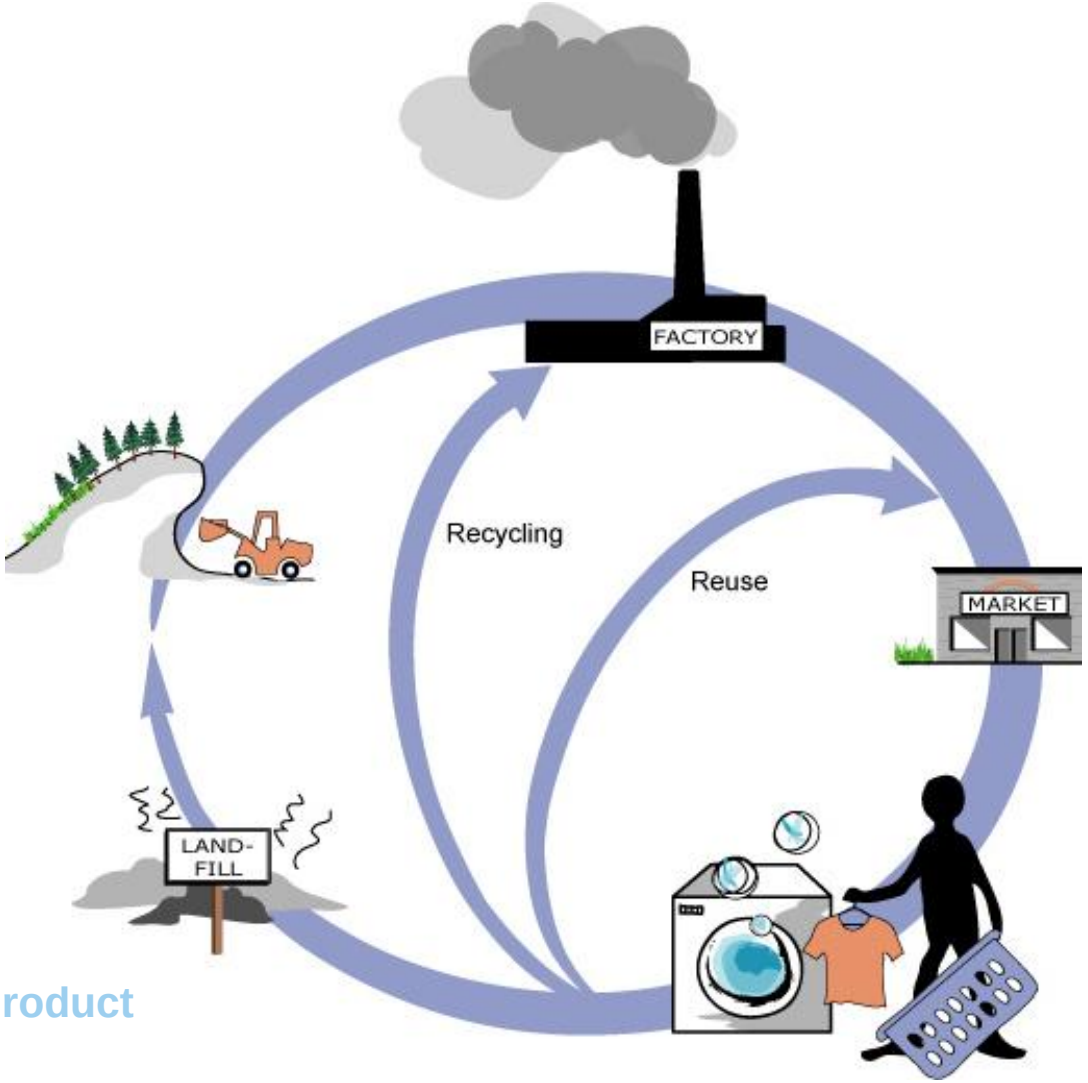
Österlund, H. 2010

Drivers for environmental management in companies

1. Legislation
2. Cost-efficiency
3. Customers' needs
4. Raw material prices
5. Company brand
6. Megatrends
7. Business opportunities
8. Environmental reporting

(source: interviews done within the FINLCA project)

Why guidance and the framework is needed?



Life cycle of a product

Why guidance is needed?

Life cycle methods…

Life cycle thinking

Life cycle assessment, LCA

Streamlined LCA

Thermodynamical methods

Ecological footprint

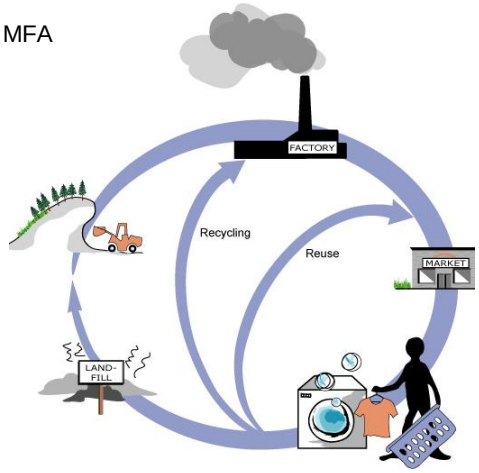
Carbon footprint

Water footprint

Material flow analysis, MFA

EE-IO

Substance flow analysis, SFA



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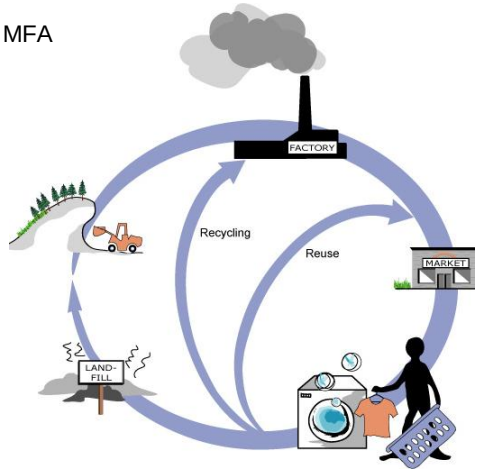

Methodological challenges…

Impact categories

Allocation

System boundaries

Uncertainties

Missing data

ALCA

Tools

Indicators

CLCA

Impact assessment

SYKE

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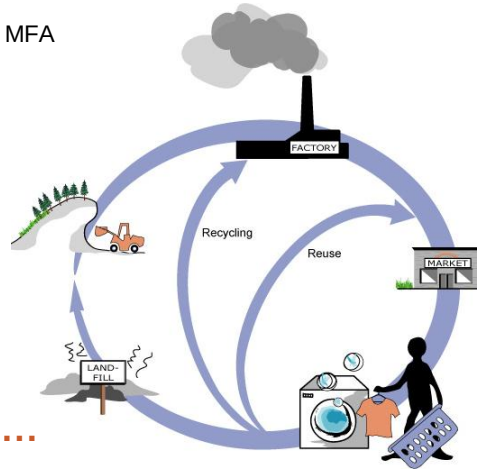

Decision-making situations…

Product development

Bechmarking

Communication

Internal / external

Future trends

Past trends

Strategic management

Ecolabels

Operational management

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ALCA
Tools
Indicators
LCA
Impact assessment

+ standards and guidance (ILCD…)

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Past trends
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Ecolabels
Operational management

Different types of companies…

Interested outsiders
Forerunners
Learners
SMEs
Economic sectors
Global companies
Unaware / not interested

Some methodological considerations

- Challenges of **land use and use of natural resources**: still developing methodology, limited data availability, difficult to understand and communicate the results
- In LCIA of **hazardous substances** different models give differing prioritizations so care must be taken in model selection
- Life cycle aspects of **nanomaterials or –technologies** need to be evaluated on a case by case approach
- Dealing with **uncertainties** is necessary in decision-making

- Taking these aspects into account in decision making in full scale **need high expertise and resources** for data compiling, modeling and interpretation of results

Examples of use in different decision making situations

- **New metal materials** – comparison of two different products for product development and also public communication
- **Bioproducts** – consumer choice between two products based on one environmental aspect
- **Construction industry** – sectoral assessment of life cycle thinking principles and crucial factors
- **Use of process industries' residues and recycled materials** – multi - sectoral assessment to improve life cycle environmental performance with industrial ecology perspective
- **Painting industry** - design of a tool for internal improving eco-design processes and understanding of environmental aspects

Synthesis

- Even though LCT and LC methods are commonly used in the forerunner companies, a large part of the companies are **lacking knowledge and resources** to apply LCT and LC methods to environmental management
  - Special challenges in SMEs

- LCA is often too complicated and resource demanding process for companies and therefore **simplified practices need to be introduced**.

- **Integration** of LCT and LC methods into companies' other planning systems and aims
  - What LC methods can contribute?

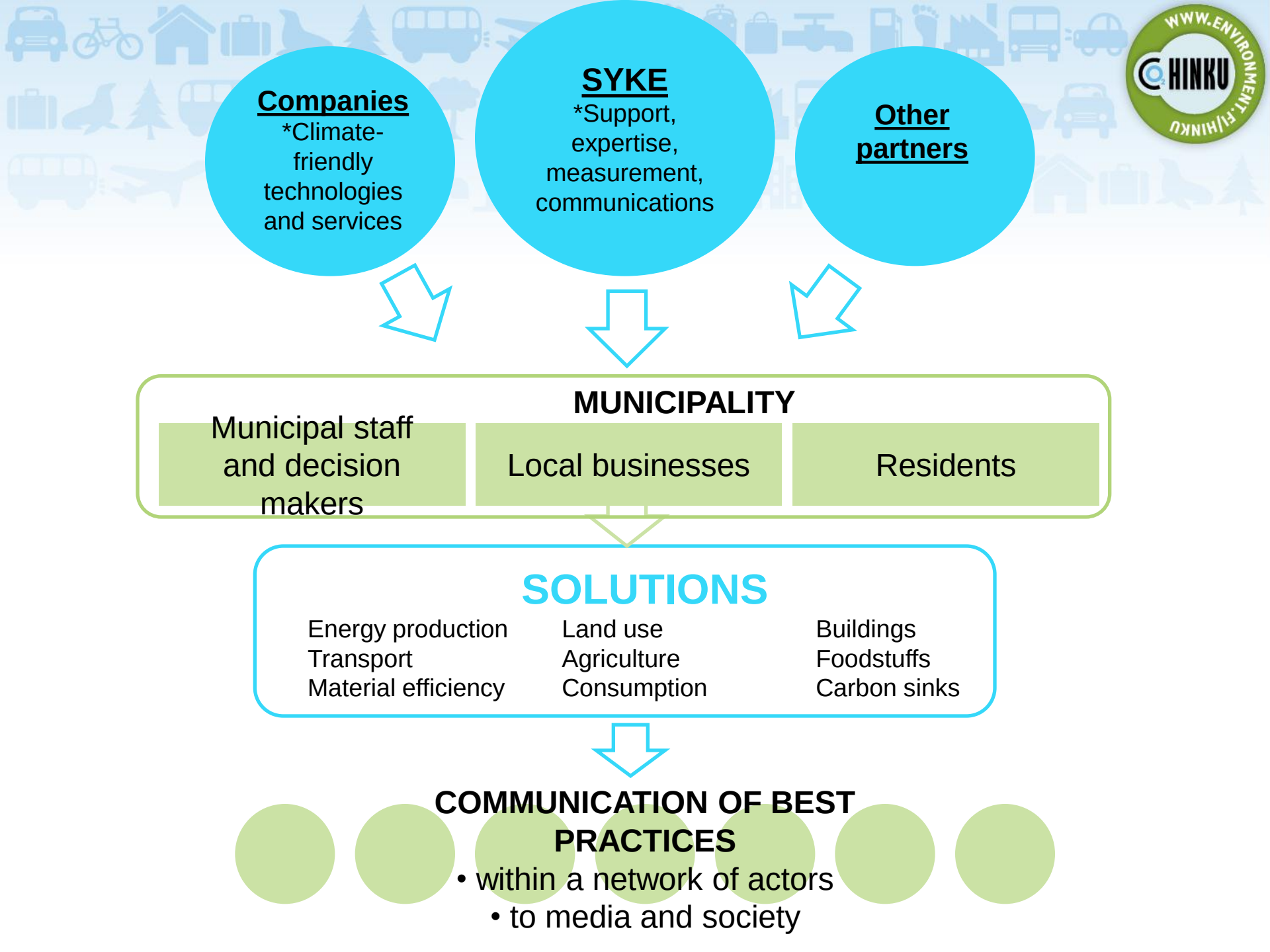
Next steps

- More **practical approaches** need to be used when spreading LCT in wide scale

- Next step with LCT and LC methods in decision making in practice will be a **pilot project**
  - on regional, value-chain or sector level
  - a networking process
  - including special type of training for SMEs
  - Linkages between LC methods and other planning tools or objectives of decision makers

Preliminary action plan

- Could be linked to the project “Carbon Neutral Municipalities” (HINKU)
  - Certain municipalities in Finland act as forerunners by aiming to cut down their greenhouse gas emissions ahead of schedule (-80% by 2030)
- Benefits of integrating LC methods in “HINKU”-process:
  - Real life applications for LC methods
  - CO2 –benefits for the environment and for the society
  - Improvements e.g. in material efficiency for the companies
- Implementation under work, but ...


Companies
*Climate-friendly technologies and services
SYKE
*Support, expertise, measurement, communications
Other partners
MUNICIPALITY
Municipal staff and decision makers
Local businesses
Residents
SOLUTIONS
Energy production
Transport
Material efficiency
Land use
Agriculture
Consumption
Buildings
Foodstuffs
Carbon sinks
COMMUNICATION OF BEST PRACTICES
• within a network of actors
• to media and society

www.environment.fi/hinku

SYKE

Sustainable community