



BE WISE • RECYCLE • REUSE • REDUCE

REWISE



SERVICE VISION FOR THE RESOURCE-WISE VALUE
CHAINS IN FORESTRY | 2022

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Vipuvoimaa
EU:lta
2014–2020



Österbottens förbund
Pohjanmaan liitto



muova

SERVICE VISION ABOUT RESOURCE-WISE FORESTRY

Main questions based on trend analysis carried out in the project:

How can manufacturers of forestry machines and equipments support resource-wisdom of their customers?

What kind of services can support resource-wise use of machines?

How can forestry value chain become more resource-wise?

We aim to answer these questions by envisioning the future value chain as well as service vision .

Vipuvoimaa
EU:lta
2014–2020



Euroopan unioni
Euroopan aluekehitysrahasto

REWISE

VISION 1

VALUE CHAIN LEVEL

Resource-wise production
of wood-based products



Using wood and other
resources of forests
responsibly and developing
resource-wise value chain of
wood-based products so that
forests remain Finland's
leading export resource in the
future

Providing easy tools for wood-
based value chains to evaluate
and develop resource-wisdom

Vipuvoimaa
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2014–2020



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BENEFITS | SHARING ENVIRONMENTAL DATA IN A VALUE CHAIN



Communicate resource-wise results and solutions to the customer



Increasing traceability of environmental impact through data-based solutions



Making resource-wisdom transparent through visual LCA



Developing resource-wisdom with the help of LCA



Predicting & adapting to the climate change based on data



Protecting biodiversity of forests



Optimizing the carbon sink capacity of forests



Cost efficiency through optimization of value chain activities and management



Supporting the collection and analysis of the data



Ensuring the optimal use of wood



Branding sustainable wood



Cost savings through reduction of waste



Support for collaborative development in a value chain



Marketing new eco-innovations

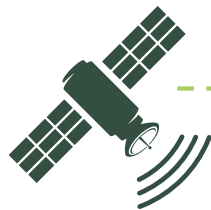


Cost efficiency optimization of logistics

Vipuvoimaa
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REWISE



VISION 2



SERVICE LEVEL



Service
DATA
PLATFORM

- WEATHER FORECASTS
- ROAD CONDITION
- FLORA & FAUNA
- AGE, QUALITY AND GROWTH OF FOREST
- DATA FROM OPEN SOURCES

BIODIVERSITY, FLORA & FAUNA
CARBON SINK CAPACITY
RESEARCH INFORMATION ON THE ENVIRONMENT
FUEL CONSUMPTION AND EMISSIONS
SIDESTREAMS

AGE AND QUALITY AT THE TREE LEVEL
BIODIVERSITY, FLORA & FAUNA
CARBON SINK CAPACITY (PRE AND POST HARVESTING)
MACHINE: TYPE, MAINTENANCE, ROUTES
FUEL CONSUMPTION AND EMISSIONS

REAL TIME ROAD CONDITION
ROUTE PLANNING
WOOD LOAD PLANNING
FUEL CONSUMPTION AND EMISSIONS

WASTE MANAGEMENT
USE OF SIDE STREAMS
ENERGY CONSUMPTION
MATERIAL INFORMATION
MARKET DEMAND

LOCAL SERVICE NETWORKS
FOR RESOURCE-WISE
WOOD PRODUCTION

FOREST
MANAGEMENT

HARVESTING

TRANSPORT

WOOD
PROCESSING

ACTORS IN VALUE CHAINS



DOWNLOADING DATA FOR LCA



CUSTOMER JOURNEY

THE PRODUCER OF THERMOWOOD



ANALYSE

MANAGE

DEVELOP

COMMUNICATE

FIND PARTNERS
MARKETING TOOLS
SIDESTREAM DEALS

FUTURE

PRESENT

FINLAND 100 PRODUCTS



GLOBAL 1000 PRODUCTS



Select

Transport

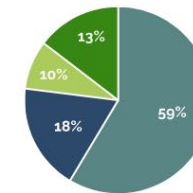
Energy consumption

Material

Waste

TRASPORT

Etiam rhoncus.
Maecenas tempus,
tellus eget



TRAIN

SHIP

LORRY

OTHER

PARTNERS



SHARE YOUR RESULTS

ANALYSE

PROVIDE LCA INFORMATION
TO THE SYSTEM

PROVIDE ANALYSING TOOLS

VISUALISE THE DATA

MANAGE

REQUEST AND SHARE LCA
INFORMATION IN A VALUE CHAIN

VERIFY SUSTAINABILITY OF THE
WOOD TO THE END CUSTOMER

DEVELOP

IMPROVE RESOURCE WISDOM IN
A VALUE CHAIN OR A COMPANY

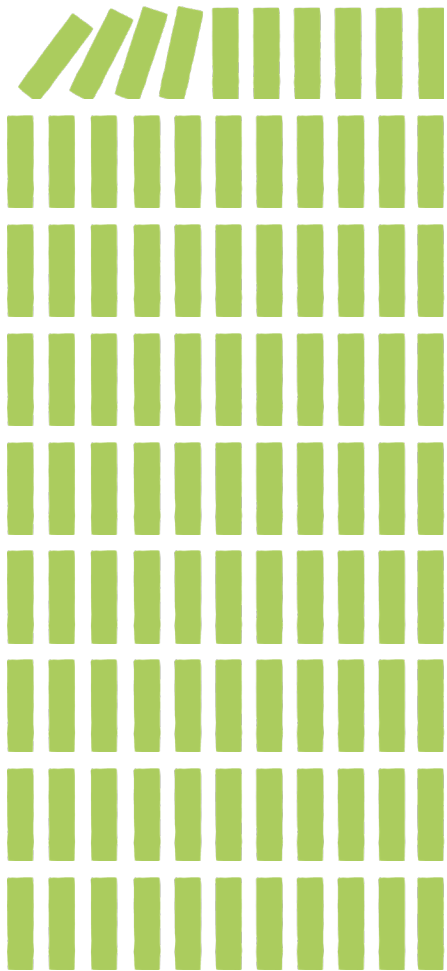
UTILISE RDI INFORMATION
DATABASE AND BEST PRACTICES

COMMUNICATE

MARKET NEW INNOVATIONS

FIND PARTNERS

REQUEST OR INFORM ABOUT
SIDESTREAMS



LCA OF THERMALLY MODIFIED WOOD

FINDING HOTSPOTS FOR DEVELOPING RESOURCE-WISDOM

BENING MAYANTI, UNIVERSITY OF VAASA

Vipuvoimaa

EU:lta

2014–2020



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REWISE

LIFE CYCLE ASSESSMENT (LCA)

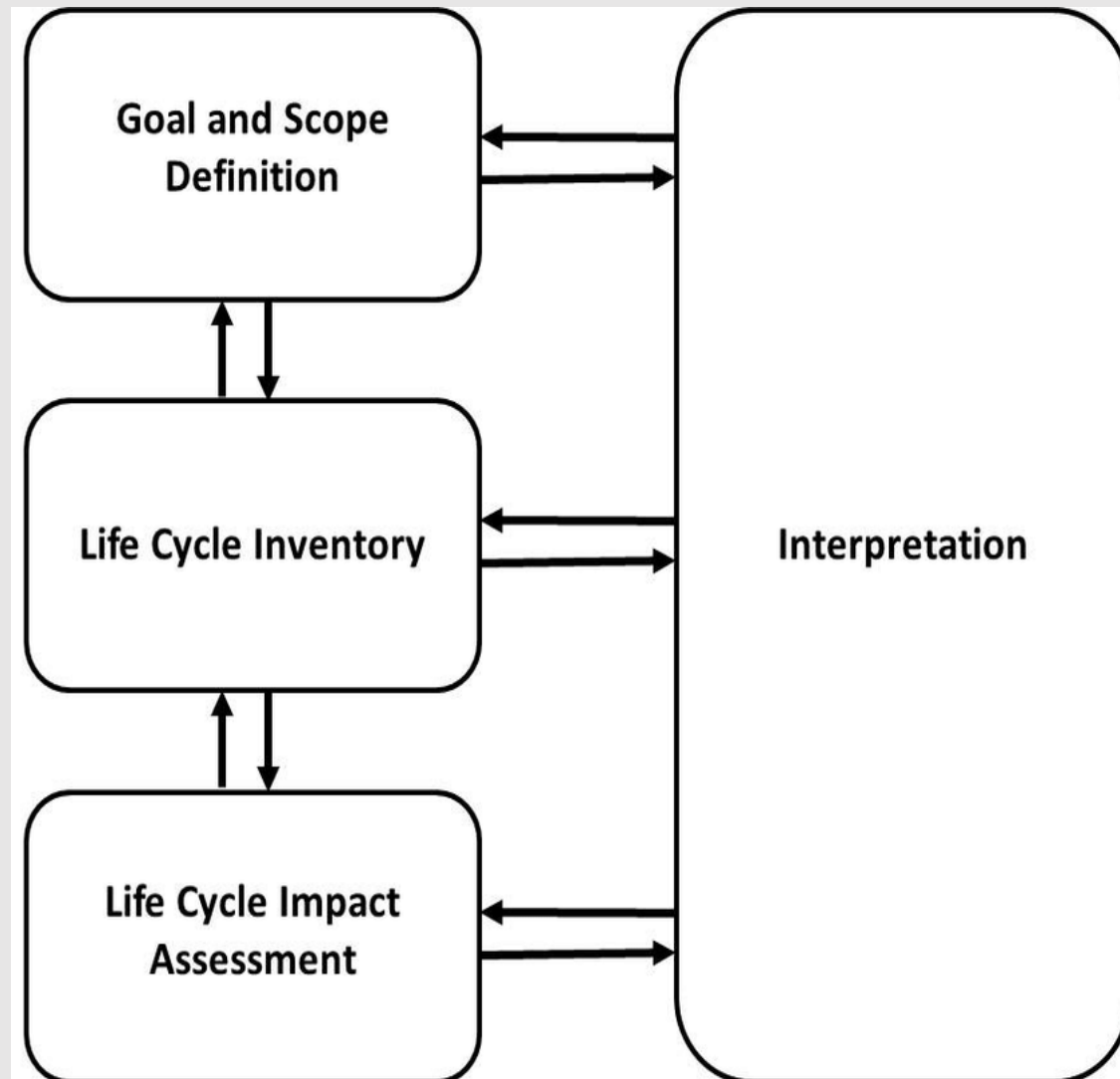
- Quantitative analysis to **evaluate environmental impacts** of product or service throughout **its entire life cycle** by:
 - Compiling input and output
 - Evaluate the potential environmental impact
- Takes life cycle perspective
- Covers broad range of environmental issue

PURPOSE OF LCA STUDIES

- Comparing products
- Identifying environmental bottleneck
- Comparing improvement options



LCA STAGES

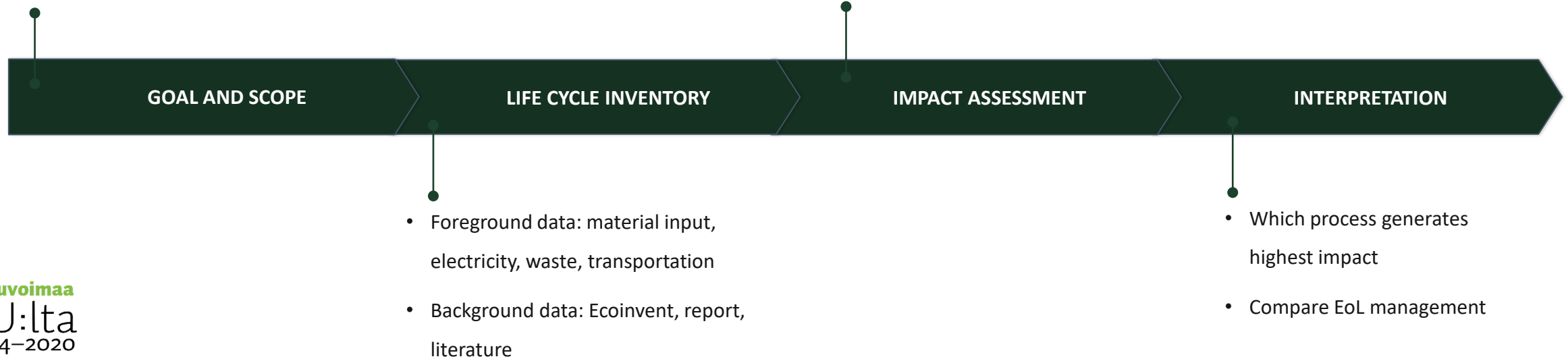


THERMALLY MODIFIED WOOD

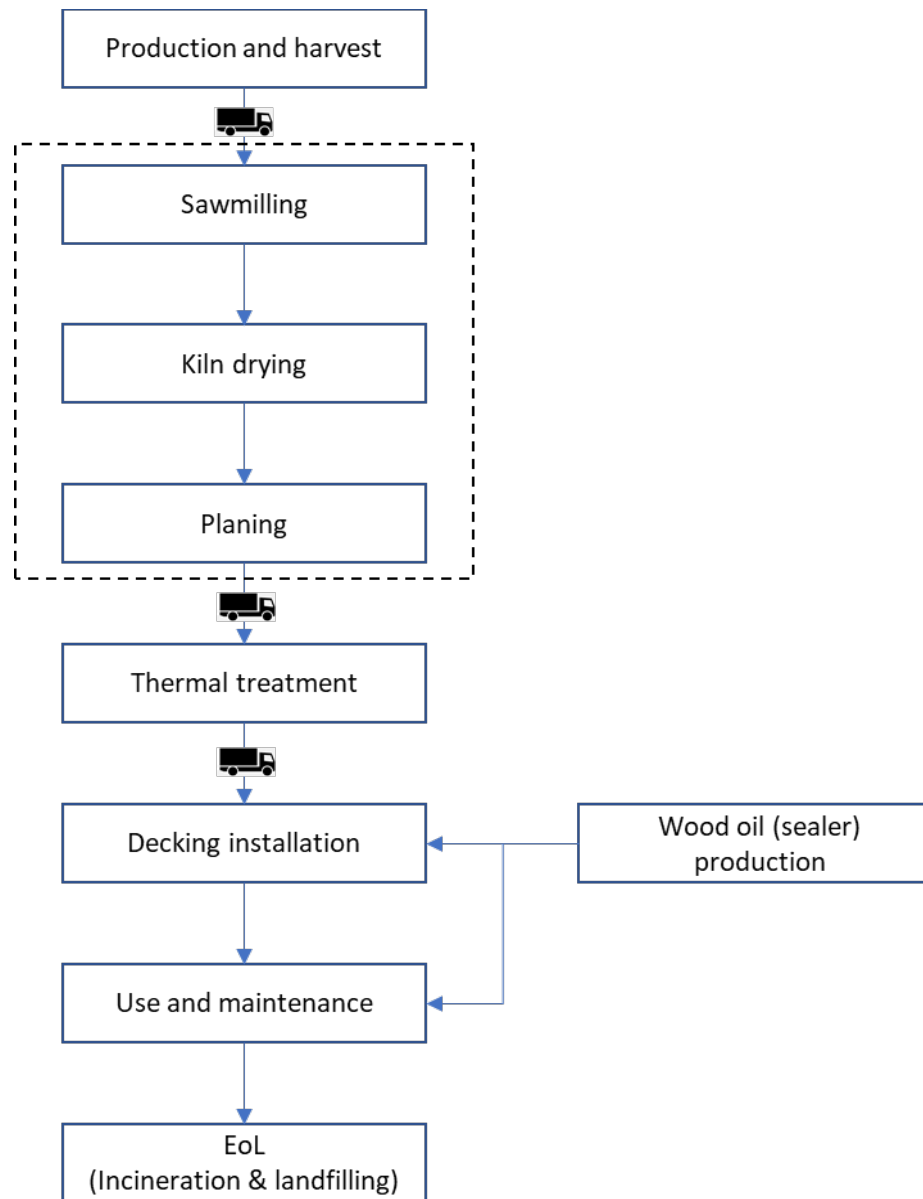
LCA OF THERMALLY MODIFIED WOOD

- Quantifying environmental impact of 1 m³ thermally modified wood (softwood, pine)
- System boundary: cradle-to-grave
- Identifying environmental hotspot
- Compare EoL management

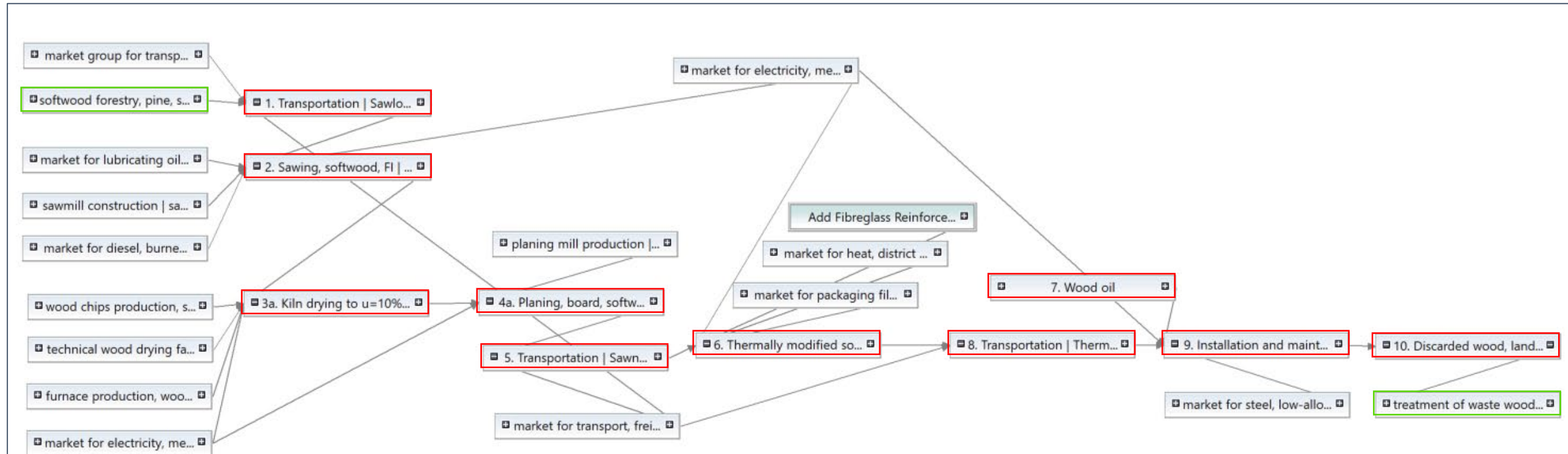
Global warming potential (GWP100)



SYSTEM BOUNDARIES



LCA IS NESTED SYSTEM



RESULTS

Environmental hotspot

