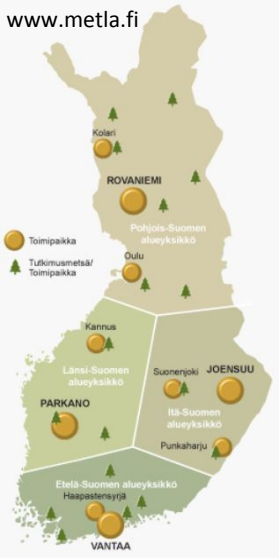
FOREST REFINE PARTNER - METLA

Forest Refine is a cross-border research project between Sweden and Finland about the raw material supply to biorefineries. Forest Refine has seven participating organizations, three from Sweden and four from Finland. This presentation of the participating organizations is about Metla – Finnish forest research institute.

METLA

www.metla.fi



FOREST – KNOWLEDGE – KNOW-HOW – WELL-BEING

The Finnish Forest Research Institute (Metla) is a governmental, sectorial research institute, subordinate to the Ministry of Agriculture and Forestry. The current network of 10 research units covers the whole country.

Metla develops solutions to the challenges and questions posed by the care, utilization, products, services and intangible value of forests. Metla's duties are defined by the law and statute to promote, through research, the economical, ecological, and socially sustainable management and use of forests.

Objective of Metla is that operations are scientifically and socially influential; promote the competitive edge of business activity based on forests, and support regional development. Metla's products and services, and the data and know-how Metla generates and actively communicates, are utilized both nationally and internationally in the advancement of the bioeconomy.

THE KANNUS UNIT

Research activities of the Kannus Unit focus on growing wood biomass, logistics of wood procurement and resulting effects of intensive recovery of biomass. Other research topics are nutrient balance and regeneration of peatland forests, forest management planning, special features of coastal forests and effect of afforestation of agricultural land on greenhouse gas balances.

Research is done in international, national and regional level with close cooperation with universities, other research institutions, other research units of Metla as well as local forestry actors. The unit has 10 researchers and about 15 other staff.

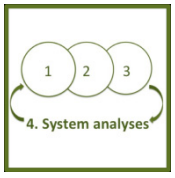
METLA IN FOREST REFINE

1. Chemical balances and available potentials of forest biomass for biorefineries

Sub-project aims at investigating the chemical balances and concentrations of all biomass components of the major tree species growing in the project region. Another purpose is to assess the geographical potential for biorefineries of different forest biomasses. The results give availability estimates of raw materials and their regional distribution. The effect of logistical solutions (e.g. biomass upgrading at the stump, at the landing and the terminal) on the chemical balances will be studied. When combining the chemical balances and the geographical accessibility the total picture on raw material supply for the whole project area will be provided. Metla will have main responsibility for the investigation of the biomass and chemical balances of various kinds of forest biomass.

2. Effective raw material supply chain from the forest to biorefineries

The purpose of this sub-project is to study the whole supply chain from the forest to delivery to a biorefinery. This includes harvest, terrain transport and storage at landing, terminal handling, fractioning and storage of different type of fractionized biomass. Different biomass fractions and their response to logistical solutions will be studied according to their physical and chemical properties. Possibilities to upgrade the biomass already at stump and at landing will also be studied. A comprehensive review of techniques and principles for comminution and mechanical fractioning will be carried out.



4. Systems analyses and energy balances for biorefinery supply chains

Aim is to design and analyze the cost and energy demands for the supply chains of forest biomass to biorefineries in reference to their requirements of biomass qualities and quantities and geographical location to biomass resources and infrastructure. For this study both theoretical and empirical data/results from all other sub-projects will be used together with literature data. The result from the system analysis gives the cost and energy demands at the different systems for delivering the right qualities and quantities of raw materials to current and possibly future biorefinery industries in the BA region.

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Cross-border cooperation over mountain and sea
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