

Forest bioeconomy in Joensuu region, Finland

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Bioeconomy

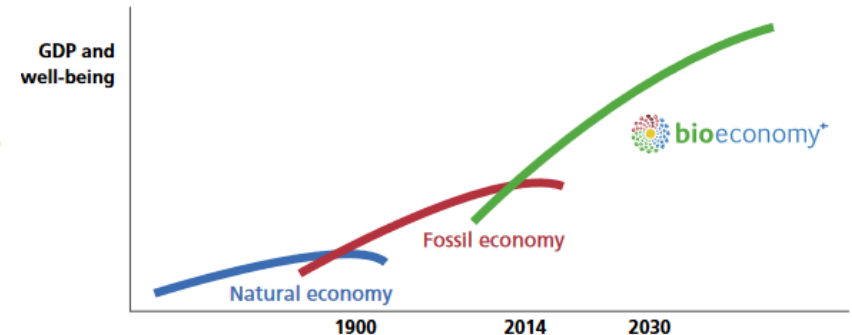
“sustainable production and conversion of biomass into a range of food, health, fiber and industrial products and energy”



Figure 1: Bioeconomy. Source: European Commission

Finnish Bioeconomy Strategy

- Adopted in 2014 .
- Aiming for a low-carbon and resource-efficient society and sustainable economy.
- To generate new economic growth and create new jobs.



North Karelia Region

- **Population:** 165,300 inhabitants (2014) in 13 municipalities.
- **Capital:** Joensuu, known as European Forest Capital.
- **Area:** 21585 km², which 70% is covered by forests.
- **Plenty of natural resources:** forests and lakes.

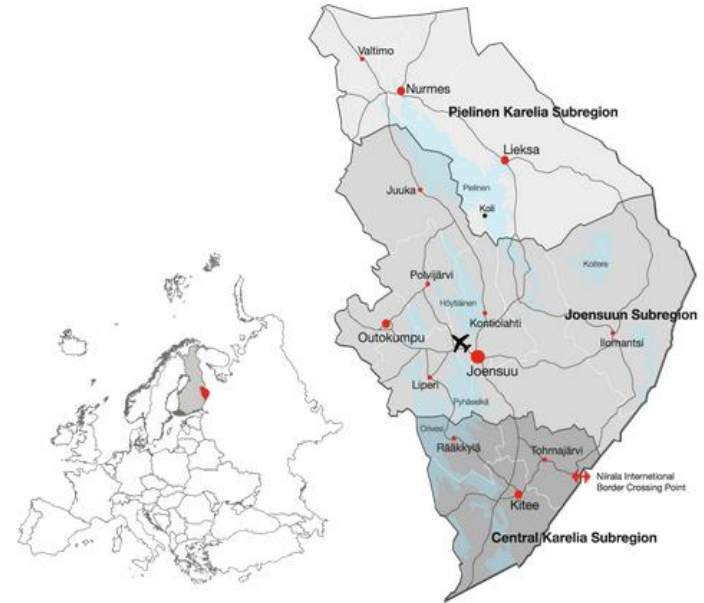


Figure 4: North Karelia Region map.
Source: pohjois-karjala.fi

North Karelia Region, unique hub of natural resources expertise

Forests

- **Main tree species:** pine, spruce and birch
- **Stock volume:** 170 million m³
- **Annual growth:** 9.15 million m³
- **Forest use:** 4.8 million m³/annually

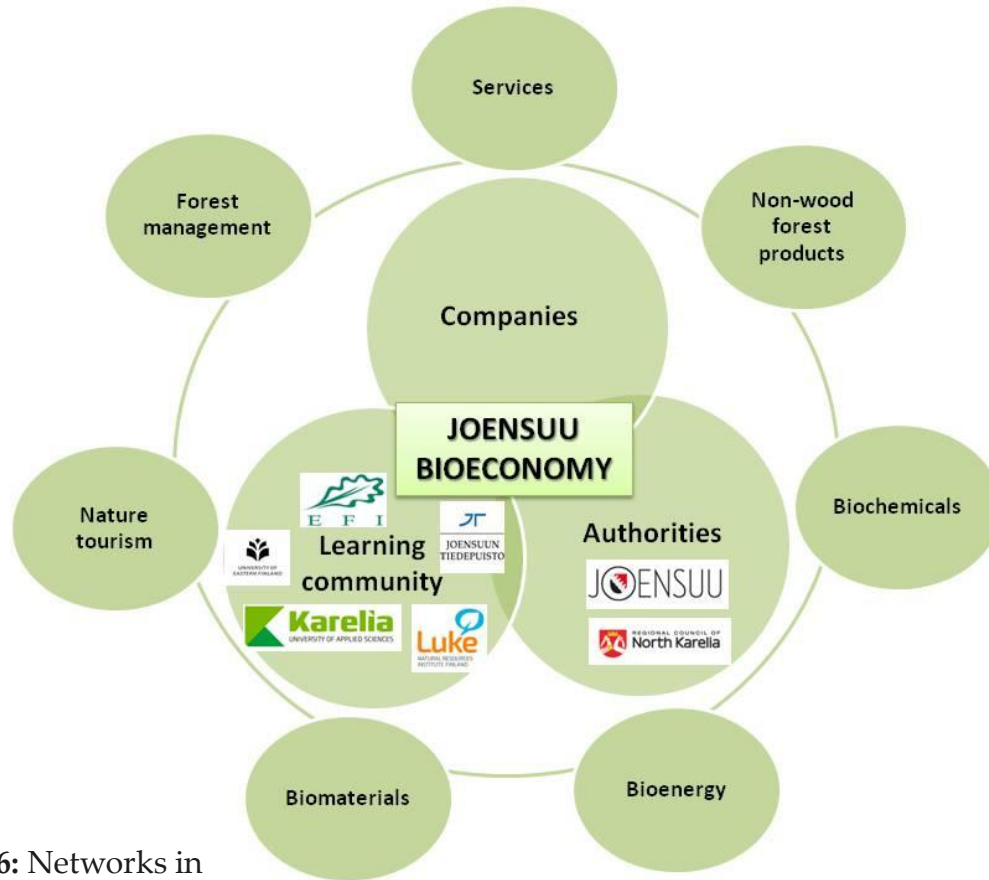
Forest bioeconomy

- Employs around 6000 people.
- 500 companies.
- 600 experts: researchers, trainers, developers.



Figure 5: Koli National Park. Source: Wikimedia Commons.

Networks in the community



Green HUB – Open innovation platform

Respected experts and experienced actors on forest bioeconomy.

Boost collaboration and harness newest research knowledge to utilization of companies.



Figure 6: Networks in the community.

Learning community

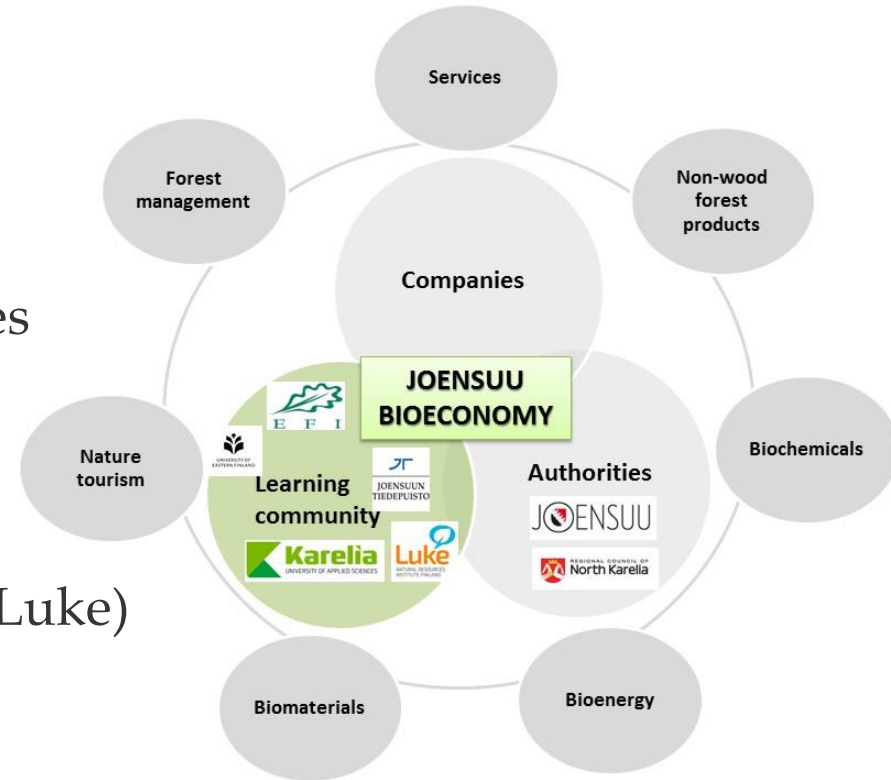
Universities

- University of Eastern Finland
- Karelia University of Applied Sciences

Research institutes

- European Forest Institute (EFI)
- Natural Resources Institute Finland (Luke)

Science Park



University of Eastern Finland

School of Forest Sciences

- Is a leading teaching and research centre of forestry and environmental studies.
- Collaboration with international, national and local actors.
- Studies:
 - BSc in Forest Science
 - MSc in Wood Materials Science, Forestry, European Forestry and Transatlantic Forestry
 - Doctoral Studies in Forest and Bioresources



UNIVERSITY OF
EASTERN FINLAND

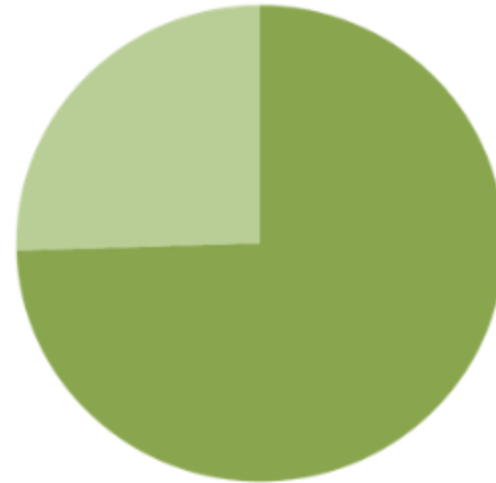


University of Eastern Finland

School of Forest Sciences

Staff:

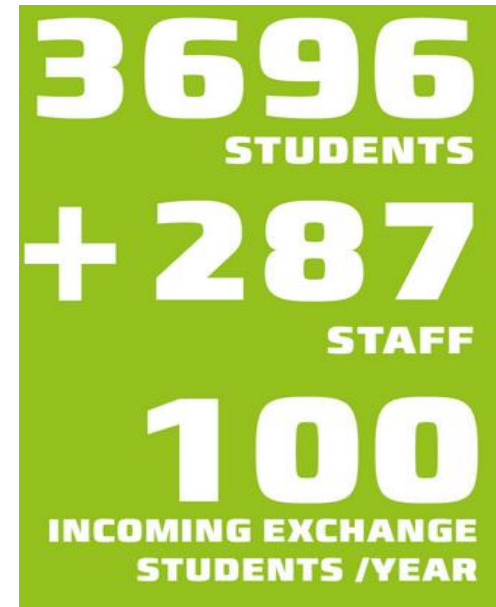
- 14 professors
- 12 senior university researchers
- 50 PhD students and postdocs
- 50 exchange students
- 500 BSc + MSc students



Annual enrolment of 150 students:
75 % international

Karelia University of Applied Sciences

- Bachelor and Master Programmes in the fields of technology, natural sciences, business and tourism.
- Participate in international programmes: ERASMUS+, Nordplus, FIRST.
- Bioeconomy related studies:
 - BSc in Forestry
 - MSc in Renewable Energy



European Forest Institute

International organization

- Headquarters are located in Joensuu. Regional offices in Barcelona, Bordeaux, Vienna, Umeå and Freiburg.
- Conducting research and providing policy support on issues related to forests.
- Bioeconomy Programme:
 - Sustainable bioeconomy
 - Future markets
 - Software tools



Natural Resources Institute Finland

Expert organization in renewable natural resources

- Provide innovative solutions for new business opportunities based on natural resources.
- Located throughout all Finland.
- 1300 employees, of which 100 in Joensuu Unit.
- Four programmes: Boreal Green Bioeconomy, Blue Bioeconomy, Innovative Food Chain and Natural Resources Economy.
- Boreal Green Bioeconomy: the biggest and most important one.



Science Park

High-quality facility services and business development services

- Established in 1990.
- 24 employees and turnover of 8,2 M €.
- More than 120 companies in the facilities.
- Business incubator, versatile support for start-up companies.
- Support programmes:
 - Green growth
 - Start Me Up: business idea competition



JOENSUUN
TIEDEPUISTO



Examples of Bioeconomy companies

Eno energy co-operative

Local, renewable wood energy

- Local approach and benefits for the community.
- Members (54 at the moment) provide 20-30% wood.
- Producing inexpensive heat in three heat plants: Alakylä, Yläklä and Uihaharju.
- 4.1 M € saved compared to light fuel oil and reduction of 5 M kg CO₂ emissions/annually.



**Enon
Energia
Osuuskunta**

Local, renewable woodenergy

Webpage: <http://enonenergia.fi/node/6>

Established in 1999
by 12 forest owners.
Located in Eno.
Turnover of 1,2 M€.

From forests to the heating plants



Forestland Investment Finland Ltd.

Consultant services for forest investors

- Provide easy, secure and profitable investment in forest sector.
- More than 4500 sold properties added to the data base.
- Market price prediction tool.
- Services to investors: procurement, management, valuation and information of production.



Webpage: <http://www.sijoitusmetsat.fi/>

Established in 2013.
Located in Joensuu.
7 employees and turnover of 1 M€.

Kupilka, dishware & knives

Adventurous best friend

- Kareline® biomaterials (50% wood-based cellulose from certified Finnish forests + 50% polypropylene).
- Finnish industrial designer.
- Environmental values are cornerstone for the company.
- Green electricity certified by EKOenergy.
- Commitment to increase the wood-based to 80% by 2050.



Webpage: <http://kupilka.fi/en>

Established in 1996.
Located in Kontiolahti.
11 employees and turnover
of 1 M€.

Kupilka, dishware & knives

Eco-friendly and long lasting in four different colours

- Kupilka®:
 - Cups
 - Cutlery
 - Knives
- Kaarna®:
 - Plates
 - Boards, for bread or cheese



Vallius Forestry

Improving the work in forestry, saving time and money

- Innovative solutions.
- Increasing the efficiency.
- Built to last and to bring substantial savings for your business.
- Easy to maintain and constructed with reliable materials.
- Two different products: Cutlink and Flowlink.

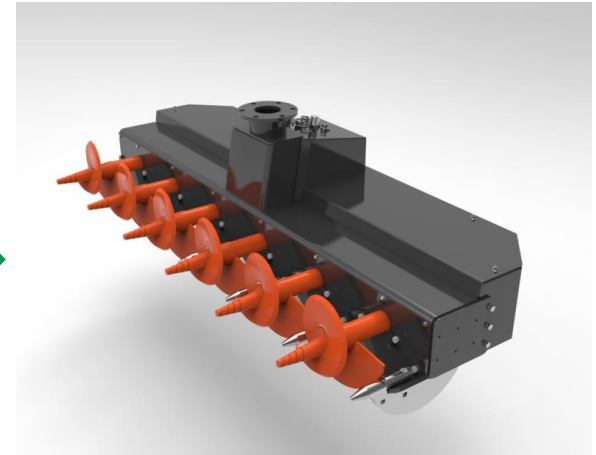
VALLIUS
Forestry Solutions

Webpage: <https://valliusforestry.com//>

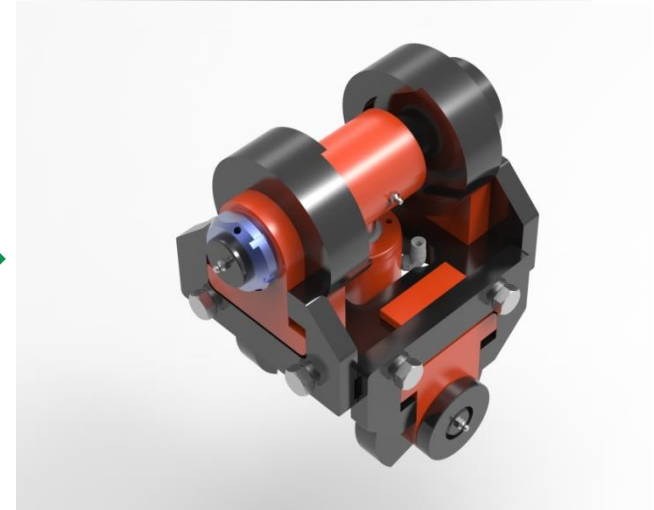
Established in 2015.
Located in Joensuu.
5 employees

Vallius Forestry

Cutlink: the solution to cut small-diameter wood efficiently (even up to a diameter of 15 cm). Very safe: no flying stones or sparks avoiding damage to the worker or machine and forest fires.



Flowlink: harvesting and material handling, much faster due to the stable movements with the automatic brake control system.



Other companies in the region

Sector	Company	Main activity	Webpage
Forest management	Arbonaut Oy	Provides highly tailored service and product solutions. GIS, remote sensing, spatial information to fulfil the clients' needs.	https://www.arbonaut.com/en/
	John Deere Forestry Oy	Forest machinery and harvesters to facilitate the forestry works	https://www.deere.fi/fi_FI/regional_home.page
	Kesla Oyj	Is a manufacturing corporation specializing in the design, marketing and manufacture of forest technology.	http://www.kesla.fi/frontpage/
Biomaterials	Stora Enso Enocell Oy	Produces softwood pulp (pine and spruce) and dissolving pulp from birch. The dissolving pulp is mostly sold for textile applications.	http://biomaterials.storaenso.com/about-us/enocell-mill
	UPM Joensuu Plywood Mill	Birch plywood for the transportation and distribution industry	http://www.wisaplywood.com/Pages/default.aspx
	Arcadia Oy	Wood construction	http://www.arcadia.fi/
	Aatelitalot Oy	Log houses construction. House packages are tailor-made to suit your needs	http://aatelitalo.fi/
	Liperin Ikkuna Ky	Produce custom made windows and door products with your desired dimensions, colors and accessories.	http://liperinikkuna.fi/
	Iivari Mononen Group	Customer-oriented provider of product and service solutions for electricity and telecommunications networks.	http://www.iivarimononen.fi/en/
	Lunawood Ltd	Lunawood thermowood, wood material produced by using heat and steam. Thermal modification improves the wood's properties.	http://www.lunawood.com/thermowood/
	Flaxwood Guitars	Flaxwood is an innovative new tone material. Created by breaking the grain structure of natural wood and injection-molding it into shape together with an acoustically sensitive binding agent.	http://www.flaxwood.com/home/

Other companies in the region

Sector	Company	Main activity	Webpage
Non-wood forest products	Nordic Koivu Ltd	Produces high-quality birch sap and research on utilising it as a raw material for the food, drink, and cosmetics industries.	http://www.nordickoivu.com/index.html
	Hermann Winery	Produce high quality sparkling wines, wines, liqueurs and spirits made of natural and aromatics Finnish berries.	http://hermannin.fi/en/home:language/en
Bioenergy	Vapo Oy	High-quality wood pellets suited for use in smaller properties as well as large combined heat and power plants	https://www.vapo.com/en
Biochemicals	Fortum	Produce advanced high value lignocellulosic fuels, such as transportation fuels or higher value bio liquids	https://www.fortum.com/frontpage/com/en/?from=irene
Services	Sisu Auto Oy	Product development and production of trucks	http://sisuauto.com/
	Kolo Design Oy	Design and manufacture stylishly practical products for real needs. Ecological Finnish design.	https://www.kolodesign.fi/
	Total Design Oy	Finnish design for many products. Both commercially and technically innovative product or services.	http://totaldesign.fi/
Nature tourism	Koli Activ Oy	A versatile firm that produces nature, activity, café and restaurant services	http://www.koliactiv.fi/english

Thank you!



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