GRETE

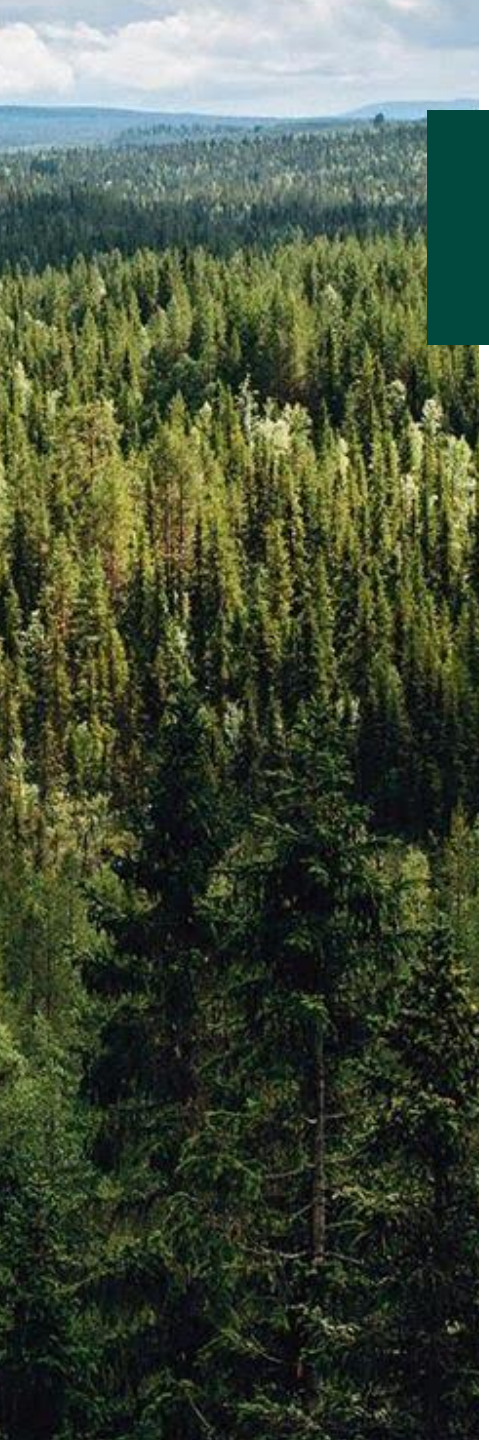
OVERCOMING THE BOTTLENECKS OF THE WOOD-TO-TEXTILE VALUE CHAIN

GRETE project has received funding from the Bio-Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No. 837527

BBI JU

Bio-based Industries Consortium

Horizon 2020
European Union Funding
for Research & Innovation



GRETE PROJECT

GRETE - GREEN CHEMICALS AND TECHNOLOGIES FOR THE WOOD-TO-TEXTILE VALUE CHAIN

Project lead
VTT Technical Research Center of Finland

BBI JU contribution
€ 2,555,243.75

Duration
01.05.2019 – 30.04.2023

Type of action
Research & Innovation Action

Feedstock origin
Forest-based

Feedstock type
Lignin & wood residues

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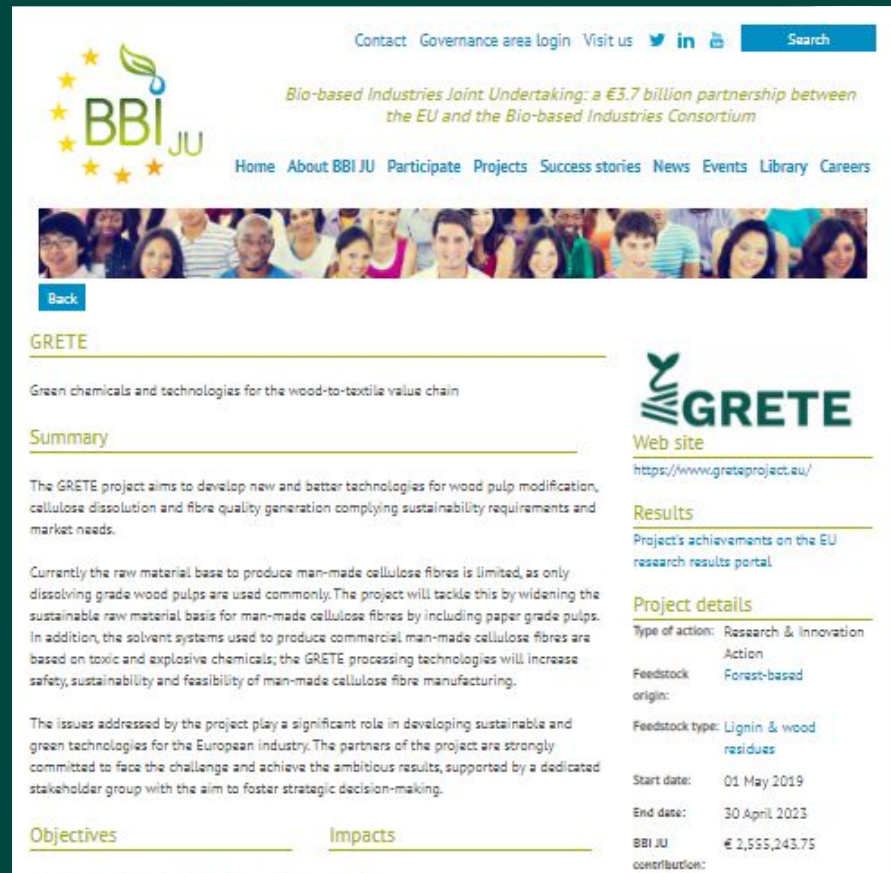

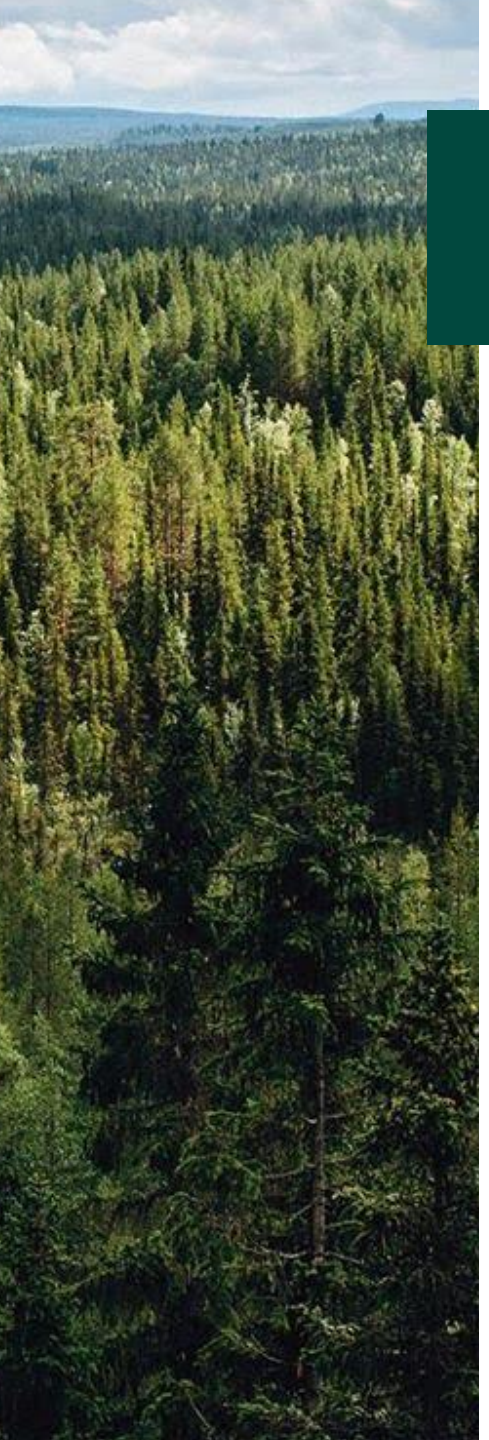

AMBITION

OVERCOMING THE BOTTLENECKS OF THE WOOD-TO-TEXTILE VALUE CHAIN

Tackle the challenges of **sustainable production of cellulose-based man-made fibres** by developing innovative technologies for wood pulp modification, cellulose dissolution and fibre generation, thus radically improving the wood-to-textile value chain.

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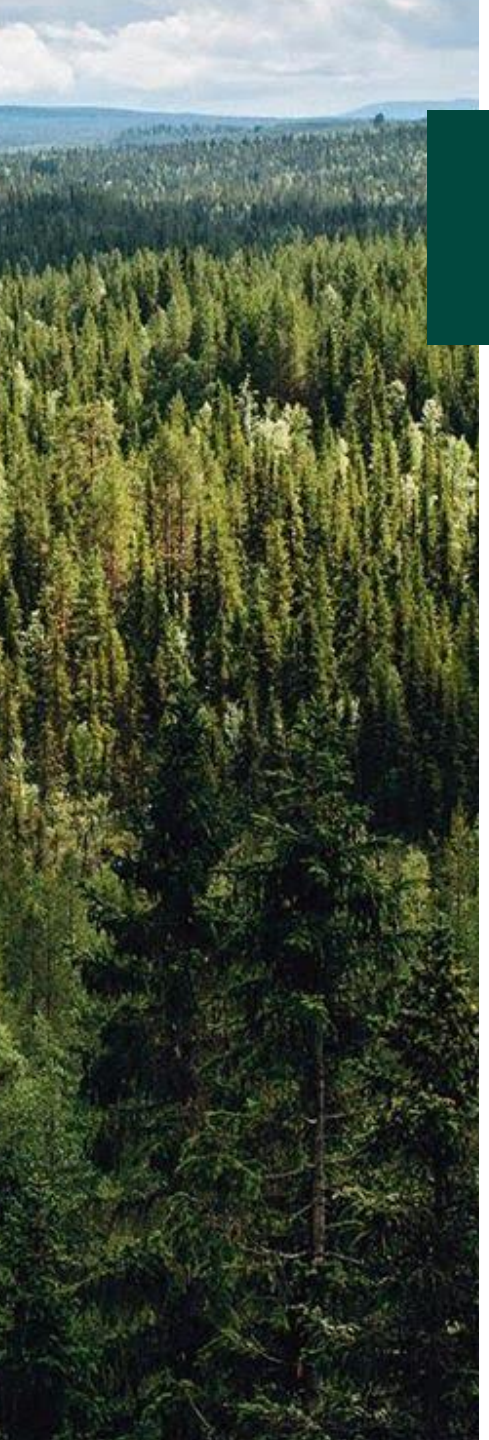


CONSORTIUM

2 RTO

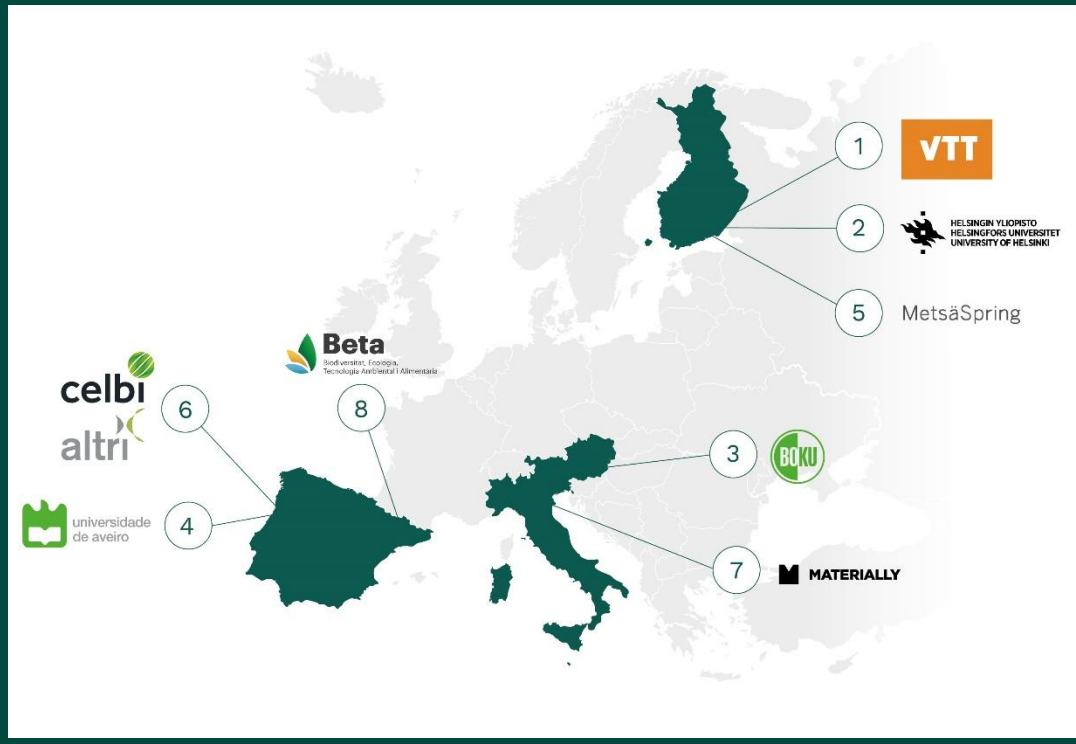
3 HEIs

1 SME

2 Large Companies

EXCELLENCE CONNECTING EUROPE'S NORTH TO THE SOUTH

The GRETE project is implemented by a consortium of a total of **eight partners**, connecting **five countries** from Europe's North to the South: Finland, Austria, Italy, Spain and Portugal, bringing together institutions from **Research**, **Consultancy** and **Industry**.



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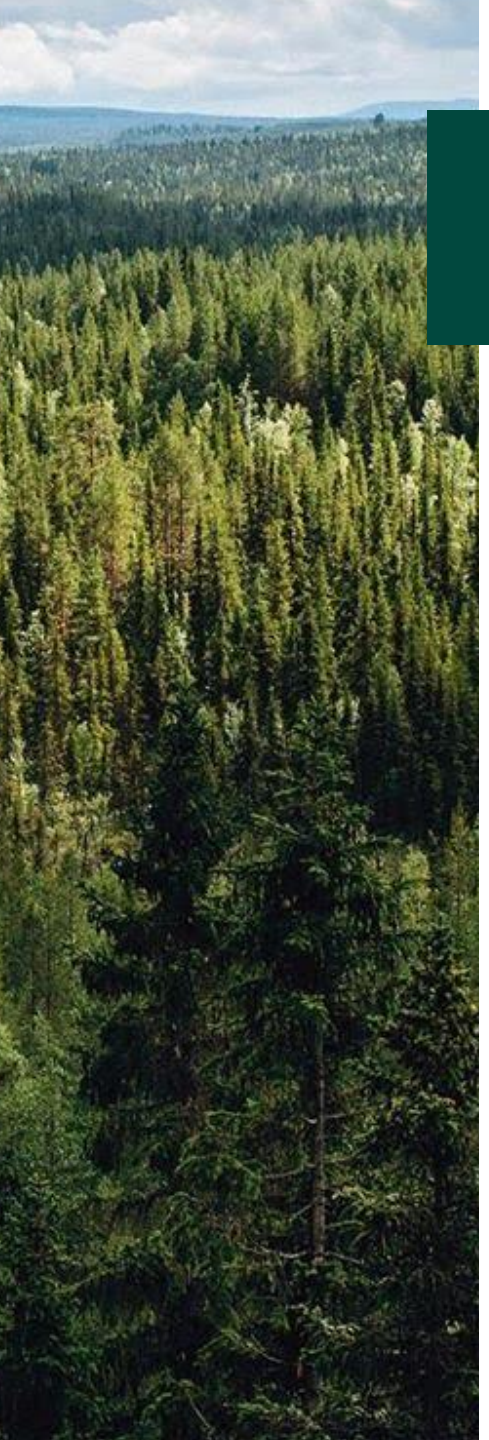
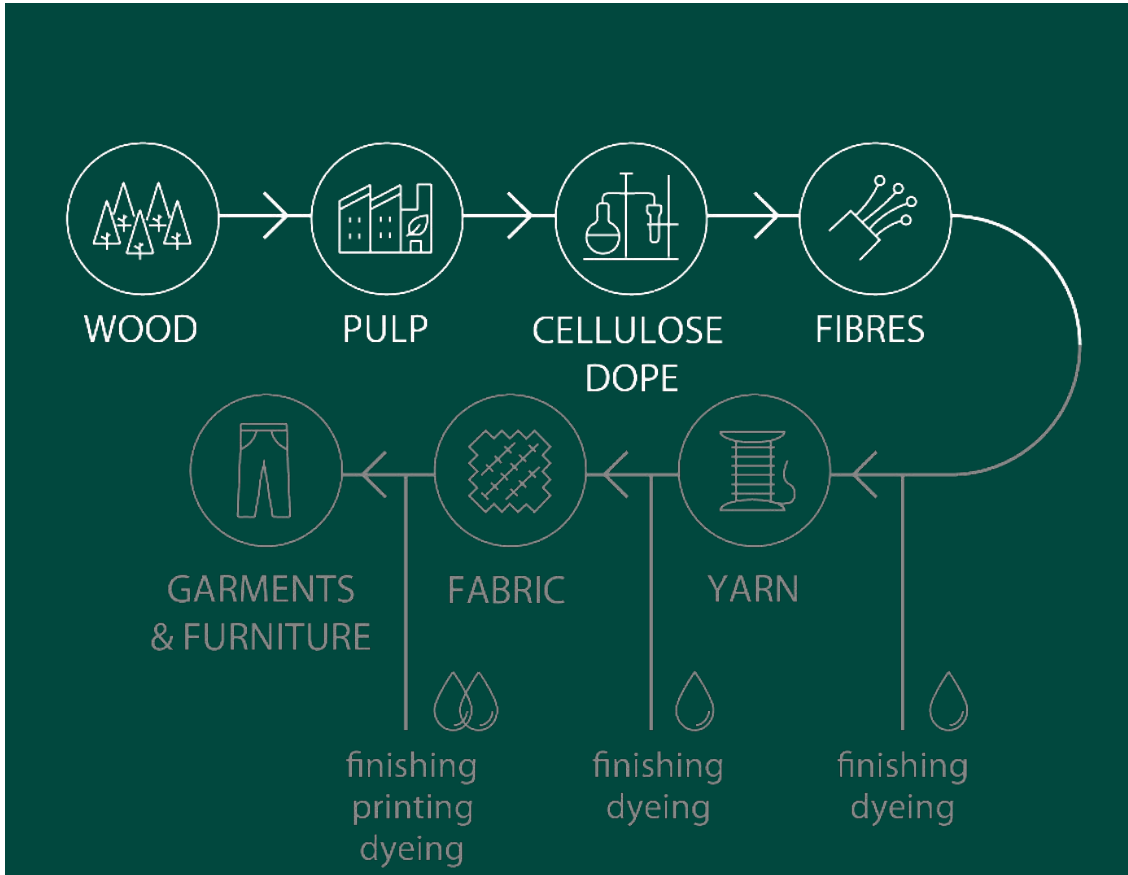


GRETE

ACTIONS

IMPROVING THE EXISTING TEXTILE VALUE CHAIN THROUGH TECHNOLOGICAL INNOVATION

Using a **new raw material** based on European paper grade pulps, implementing **novel solvent systems** based on ionic liquids, and feasible and sustainable modification procedures for **cellulose** dissolution and **regeneration**.



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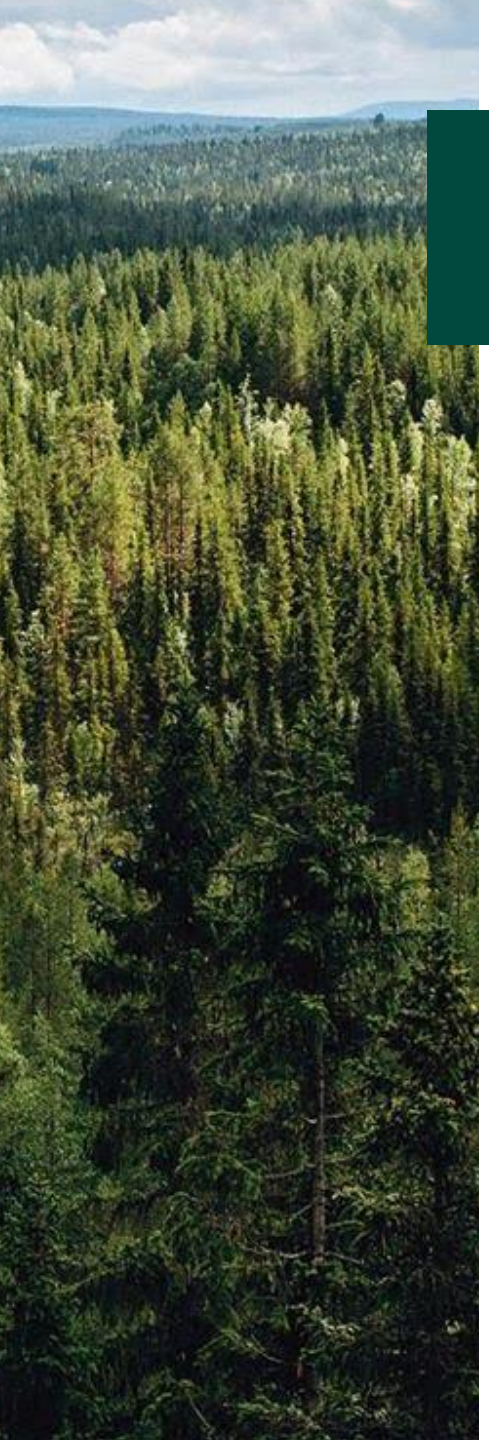
Bio-based Industries Consortium

Horizon 2020 European Union Funding for Research & Innovation



SUSTAINABILITY

GRETE will radically improve the wood-to-textile value chain by developing sustainable technologies for production of high-quality cellulose-based textile fibres

Broader raw material base by using paper-grade pulp

- Resource efficiency
- Reduction of chemical consumption
- Positive economical impact

Developing enzymatic and chemical pulp modifications and **novel solvents** based on ionic liquids

- Offers possibility to use European paper-grade pulps
- Current solvents are either environmentally hazardous or explosive

Developing sustainable **fibre modification** processes

- durable high-quality fibres
- targeted and water-scarce finishing treatments and dyeing

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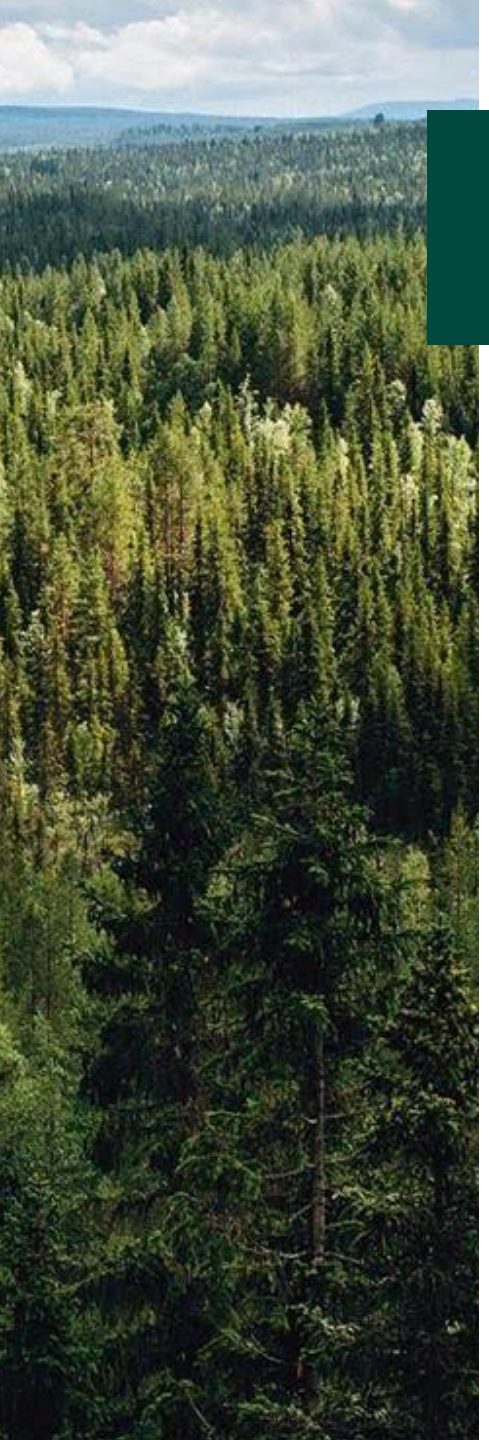

OUTCOMES

Reducing the carbon footprint of a finished textile garment product by approximately 40% and develop water and chemical scarce finishing processes

Developing **sustainable and competitive bio-based industries** in Europe

Improving technological performance of existing biorefining operations and **reducing biorefineries' capital and operating costs**

Societal **impact also outside the EU**: release of land for food production (now used for cotton farming), reduction of water and pesticide consumption (both being environmental detriments of cotton production)

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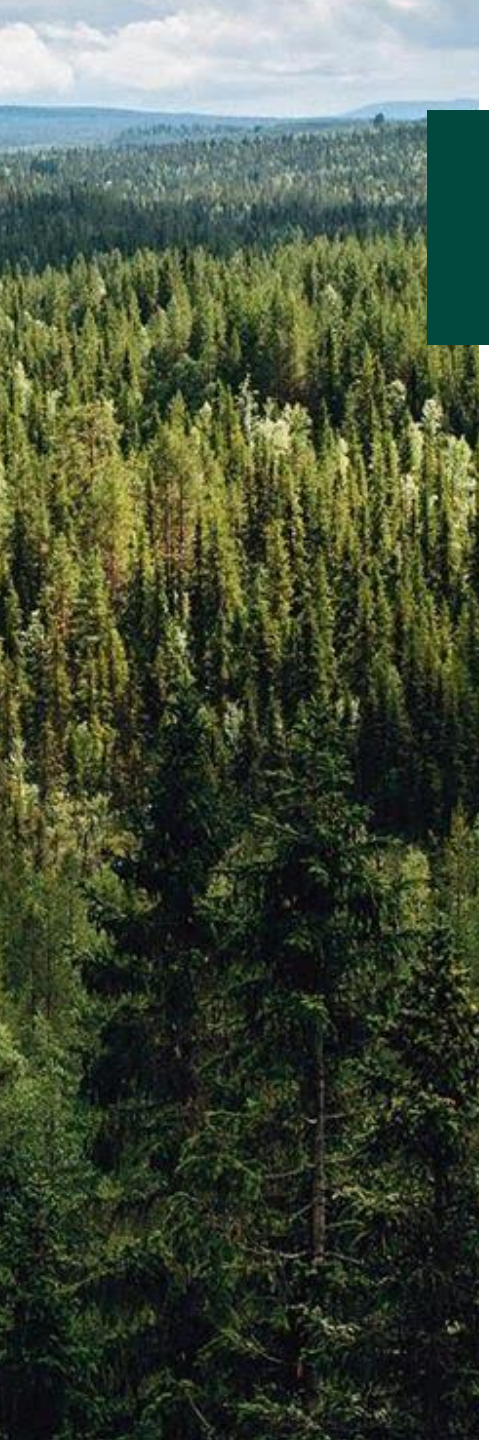

LOCAL IMPACTS

Create new jobs and offer working opportunities **in less populated rural areas** of the EU

Forest-based industries **provides income to around 16 million forest owners** in the EU and help maintain employment and wealth generation in rural areas

Possibility to use **forest-based raw materials free from herbicides and insecticides**

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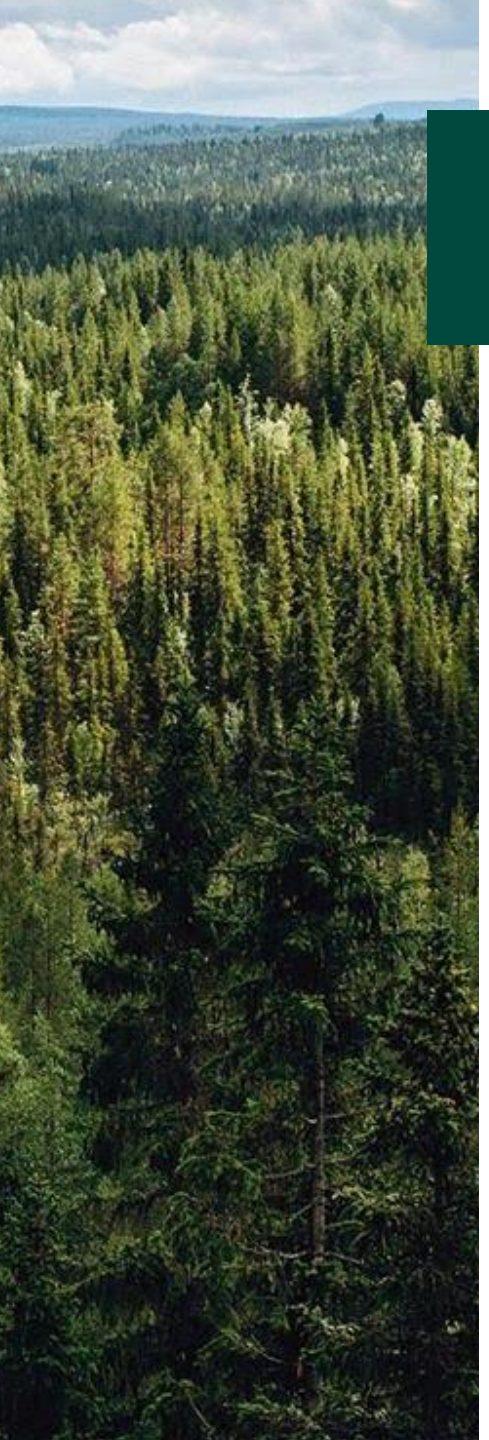

CONTRIBUTION TO EU POLICY

Support **growth and re-industrialization** in Europe

Strengthen the **links between science and policy-makers** removing unnecessary regulatory barriers.

Assist industry to further explore promising technologies to **broaden and strengthen the bio-based industries** in Europe simultaneously reducing the environmental footprint of the total value chain.

Help to answer grand challenges established in the **European Bioeconomy 2030** including sustainable management of natural resources, sustainable production, improving public health, mitigating climate change, integrating and balancing social developments, and sustainable development.

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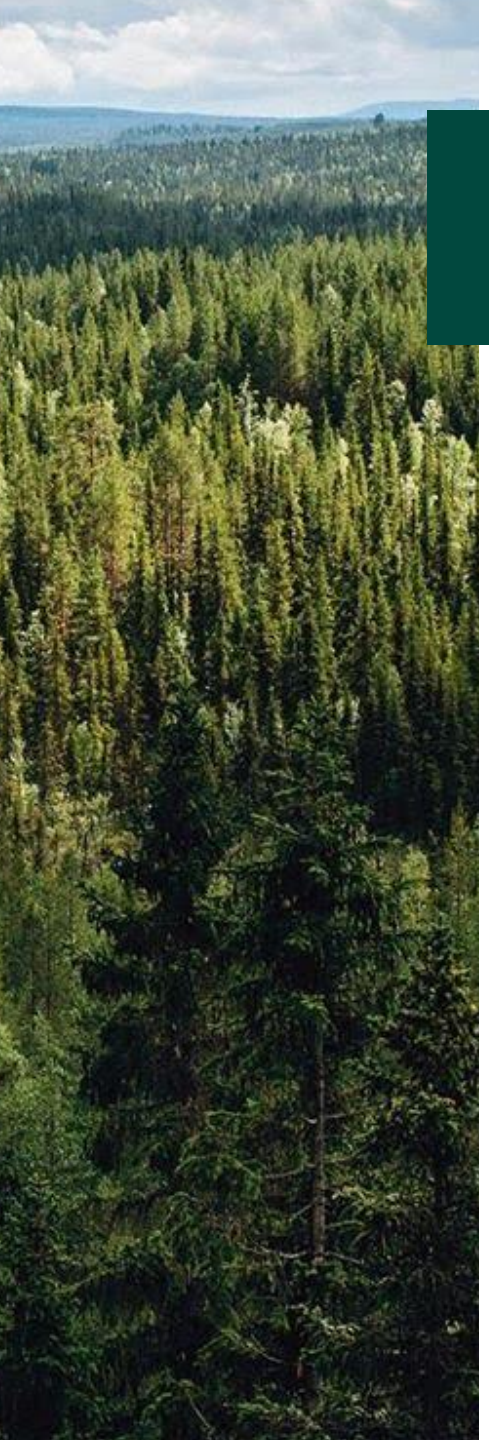

INTERIM RESULTS

R&D WORK ON TRACK

Several thesis workers are documenting the research work carried out within GRETE, such as the paper grade Kraft **pulp modifications**, the analysis of **solvent recovery** concepts and the spinning of the first batch of **GRETE fibres**, which are now tested.

NOVEL RAW MATERIAL BASE FOR THE TEXTILE INDUSTRY

NOVEL SOLVENTS FOR CELLULOSE DISSOLUTION & REGENERATION

HIGH QUALITY FIBRES WITH TAILORED PROPERTIES

Download the GRETE related scientific publications **here**.

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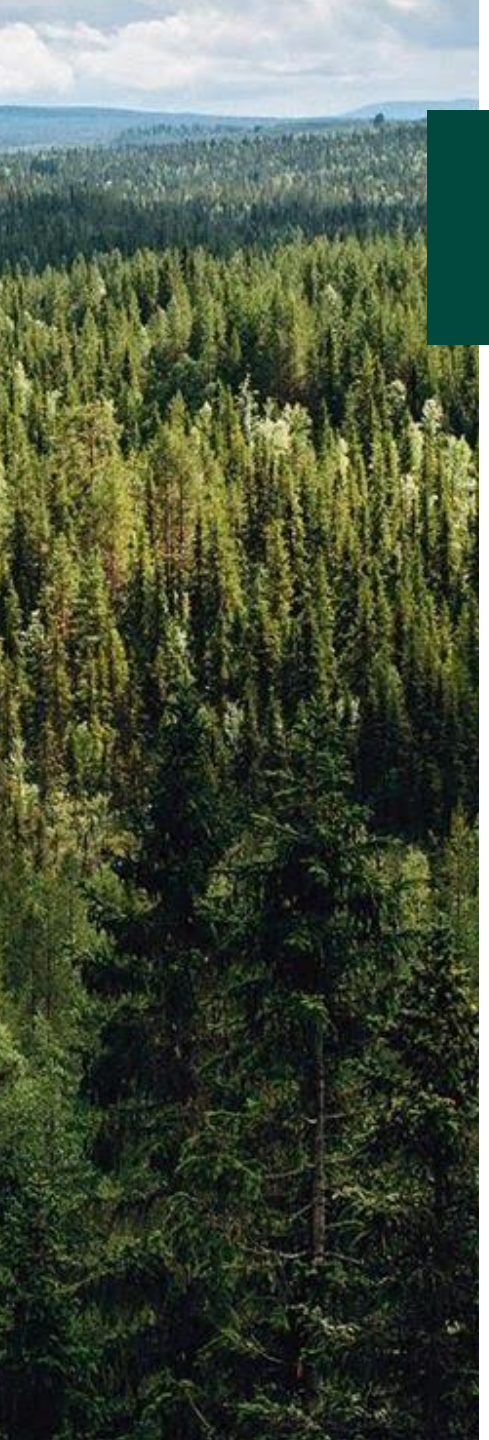

Thank you!

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