• SPIRE-03-2016 Industrial technologies for the valorisation of European bio-resources into high added value process streams

• 01/10/2016 – 31/09/2020
Rehab Case Study

1. The EU/ SPIRE needs
To create commercially viable ways to convert the abundance of agroforestry waste in Europe into high added-value products

2. The Project Solution
To develop and test new processes to create bio-polymers for industrial implementation – and demonstrate their commercial viability

3. Value to Customers
Not only will these products be greener and economically viable, they will outperform their fossil-based equivalents, with significant gains across sectors.

4. How will this happen?
Demonstration of the technical, environmental and economic feasibility of the product use in the construction sector, with important mass consumption perspective by the companies. Involving industry partners, who will commercialise and produce high-value-added products.
What are the **key expected sustainability impacts** of *Rehap*?

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline</th>
<th>Expected Impact</th>
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</thead>
<tbody>
<tr>
<td><strong>Use of fossil-based materials</strong></td>
<td>Phenolic resin 1.4 million tons (construction)</td>
<td>Potential reduction: 1.177 million tons</td>
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<td></td>
<td>Superplasticisers for cement 628,000 tons (Europe and North America)</td>
<td>Potential reduction: 500,000 tons</td>
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<td>Rigid PU foams for insulation 5.84 million tons (projected 2020, not just construction)</td>
<td>Potential reduction: 4.68 million tons</td>
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<td>Adhesives for the construction sector 2.5 million tons (construction)</td>
<td>Potential reduction: 2 million tons</td>
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<td><strong>Reduction of energy use</strong></td>
<td></td>
<td>30-50% reduction across all 4 materials</td>
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<tr>
<td><strong>Reduction of CO2 emissions</strong></td>
<td></td>
<td>25-50% reduction across all 4 materials</td>
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<tr>
<td><strong>Cost savings</strong></td>
<td></td>
<td>Biophenolic resins 19%</td>
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Rehap outputs that will be of value for other SPIRE projects

Study into the availability of agroforestry waste in Europe. Interesting findings

- Under-utilised agricultural and forestry residues in the EU that can be used for high added value products
- Outlining the regional differences in potential available residues
- Concentration of straws in Central and Western Europe
- Concentration of forestry residues in Scandinavian countries
- Study available on the project website

Bioeconomic potential identified in EU-28

- Wheat straw: 46MT
- Maize stover: 31MT
- Barley straw: 16MT
- Rape straw: 14MT
- Sunflower start: 10MT
- Coniferous bark: 15MT
Contacts

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Unleashing nature’s green superheroes

To be continued...