FISSAC - Fostering Industrial Symbiosis for a Sustainable Resource-intensive Industry across the extended Construction Value Chain

- WASTE-1-2014: Moving towards a circular economy through industrial symbiosis
- 54 months, 01/09/2015 – 29/02/2020
- Partners
FISSAC - Project Case Study

1. The EU/ SPIRE needs

Lack of solutions for more efficient waste management for the process industry through cross sectoral application of technologies, including industrial symbiosis.

2. The Project Solution

An innovative industrial symbiosis model towards a zero waste approach in the resource intensive industries of the construction value chain, tackling harmonized technological and non-technological requirements, leading to material closed-loop processes and moving to a circular economy.

3. Value to Customers

The FISSAC project aims not only to increase industrial competitiveness and reduce associated environmental impacts, but also ensure that society as a whole benefits from Europe’s transition towards the circular economy. Industrial customers could benefit from a new software platform that support the transformation of waste into new raw materials for the production of cement, concrete, ceramic and Wood Plastic composite products.

4. How will this happen?

The new industrial symbiosis model supported by a software platform will be demonstrated in the European construction scenario, using industrial waste/by-product from different industries as Secondary Raw Materials for construction applications establishing cross sectoral industrial synergies (new waste integration technologies, new recycled products, development of a new industrial symbiosis model).
What are the **key expected sustainability impacts** of *Project FISSAC*?
(select key indicators)

**Baseline:** e.g. 1000 te/yr [manufacturing plant of ...], using fossil fuel energy, conventional solvents, conventional heat exchangers etc., sited in Southern Spain, Cradle to Gate assessment (producing identical product; improving the process)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Baseline</th>
<th>Expected Impact</th>
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</thead>
<tbody>
<tr>
<td>Improvement in waste management</td>
<td>Prevention</td>
<td>15% reduction of waste generation&lt;br&gt;170,298 ktonnes per year</td>
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<tr>
<td>Improvement in waste management</td>
<td>Reuse of waste / substance recovery</td>
<td>12% gains in productivity for waste treatment&lt;br&gt;30.36 million tonnes per year of usable waste.</td>
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<tr>
<td>Reduction of the consumption of Materials</td>
<td>Reduction of use of raw materials</td>
<td>15-25%</td>
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<tr>
<td>Reduction of Energy consumption</td>
<td>Gains in productivity for waste treatment</td>
<td>12%</td>
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<tr>
<td>Reduction of Energy consumption</td>
<td>Energy efficiency and associated GHG saving</td>
<td>20% energy efficiency and associated GHG emissions</td>
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</tbody>
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*Core SPIRE indicator*
What outputs or learning from Project FISSAC could have value for other SPIRE projects here?

Innovative technological and non-technological processes to transform waste into valuable secondary raw materials has been partially achieved. We recovered waste from industry and the evaluation of new products’ formulations have been optimized at lab scale. Currently, our efforts are focused on the validation at pilot scale. Evaluation of the proposed processes and value chains from a life cycle perspective in order to ensure their environmental and economic sustainability.

We are exploring new spontaneous symbiosis and the range of waste products studied will be expanded in order to analyze if the FISSAC industrial symbiosis model can be used by other types of processes and waste products. FISSAC platform for Industrial Symbiosis will be presented, a prototype of a set of capabilities, in our next GA meeting in Stockholm (October 2017).
from current models to…

A new industrial symbiosis model will help Europe’s construction sector to develop new sustainable construction supply chains that reduce waste, make use of high quality recycled products and create new market opportunities.
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