

## **The LIFE Programme: Over 20 years of improving waste and wastewater management in the EU**

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The [LIFE programme](#) was established in 1992 and is the EU's funding instrument for the environment. The general objective of LIFE is to contribute to the implementation, updating and development of EU environmental policy and legislation by co-financing pilot or demonstration projects with added value.

With regards to waste management, LIFE co-funds innovative projects that upgrade waste recycling technologies and processes in a wide range of industrial sectors all across Europe. Of the [4 171 initiatives](#) supported by LIFE to date, 617 have focused exclusively on waste, with almost €433 million allocated. In fact, waste management is the theme most widely tackled by the programme.

In particular, LIFE has focused on demonstrating innovative technologies for recycling specific materials from waste streams, such as hazardous, agricultural and municipal waste. Linking waste management to other environmental topics, such as climate change and the protection of water resources has been another issue much covered by the programme. Finally, LIFE has also actively contributed to waste prevention by raising public awareness, promoting the exchange of knowledge and developing information tools for better waste management.

Concerning water, the programme has supported a total of 484 projects, allocating over €300 million. These initiatives have contributed to improving the qualitative and quantitative status of water bodies; fighting water scarcity; increasing water efficiency; and up-scaling water-related green infrastructure, among other benefits. Wastewater management has undoubtedly been one of the priority themes for LIFE with 202 projects supported to date.

Examples of LIFE projects on industrial waste and wastewater management include:

. **Plastic:** [RECIPLAS](#) introduced a new plastic waste mixing process that produces a high-quality plastic material – 100% recyclable, recoverable and reusable – that is used to produce packaging and pallets. The proposed technology consists of mixing, setting up and thermally agglomerating plastic wastes, generating high-density granules. The granules are then injected into a moulding unit for low-pressure transfer, where the final shape is given to plastic products. The process does not result in any structural damage to the material, allowing it to be continuously recycled. It is estimated that each plastic pallet that is produced saves one tree – as wood is no longer used to make the pallets – as well as greatly reducing the amount of plastic to be dumped by around 3 000 tonnes/year.

. **Fibreglass:** The [WGF-PP](#) project demonstrated an innovative and easily transferrable solution for recycling glass fibre and plastic wastes in the production of reinforced thermoplastics. Prior to the project, the use of non-virgin fibreglass or other material in the classic production system was not possible because the machinery would break down as a result of the abrasive effect of the plastic glass. The technology developed by the project involved a new mixing machine that produces reinforced plastics and allows different types of used material (fibreglass, polypropylene, additives, dyes, etc.) to be added. The final product can be used in the automotive and appliance sectors. Its recycled glass fibre reinforced plastics granules exhibit mechanical properties that are equivalent to 85-95% of those of virgin materials. As well as providing a solution for reintroducing glass fibre wastes to the market, the project also benefits the environment by reducing the amount of energy-consuming fibreglass consumption/production. Specifically, the plant constructed by this project has a processing capacity of 17 000 tonnes/year, representing a reduction in CO<sub>2</sub> emissions of 2 920 tonnes/year. This technology is also potentially highly transferable. If fully applied to the 150 000 tonnes of glass fibre waste produced in Europe every year, this technology would lead to a saving of 219 000 tonnes of CO<sub>2</sub> emissions.

. **Leather industry:** The [ECOFATTING](#) project developed a series of natural compounds to substitute chlorosulphonates as fattening agents in leather tanning. These innovative compounds, which are based on a natural raw material (palm oil), have a lower environmental impact during their whole lifecycle. Their production requires less energy and fewer natural resources, while their use in the leather treatment reduces the impacts of the overall process without compromising the quality standard required by the industry. The new eco-fattening compounds fix more strongly to the leather substrate – reducing its dispersion in the environment – and are significantly more biodegradable (around 40%) than the commonly used ‘fat-liquoring’ agents. According to the project results, the eco-fattening products are ready to be produced and sold in the market at competitive prices. The competitive prices of the ecofattening products make the project results highly transferable as they can be immediately used by the leather industry without the risk of higher production costs lowering competitiveness.

. **Paper industry:** [RESALTTECH](#) developed an innovative and energy-efficient treatment for the saline effluent, brine, produced by the paper industry. The system first purifies the effluent through a reverse osmosis treatment that produces clean water ready to be reused. The resulting residue of the reverse-osmosis is dried using the energy produced by the incineration of other banal waste generated by the industry. Other specific results of the project include:

- Water stress reduction: 89% less fresh water could be consumed in a full-scale plant;
- Weight waste reduction of around 80-85% in an up-scaled plant, decreasing waste management costs.

The technology pioneered is innovative, integrating and adapting market equipment for treating saline water and producing energy from waste incineration. If transferred to other paper mills the RESALTTECH model can significantly help to reduce the 1.4 billion m<sup>3</sup>/year of water consumed as well as the 50 000 tonnes/year of waste produced by the sector. It can also be applied to other sectors with the same problems.

At the upcoming international conference on Industrial Waste & Wastewater Treatment & Valorisation, LIFE proposes to:

- Give a presentation on good practices and technologies for industrial waste and wastewater management that have been developed by the programme; and
- Display posters, ([1](#), [2](#), [3](#)) [technical brochures](#) and other publications on the contribution of LIFE to waste management, should an exhibition be envisaged.