

- THE LIFE PROGRAMME -
OVER 20 YEARS IMPROVING WASTE MANAGEMENT IN THE EU

C. DE LA PAZ*

**LIFE Programme, Communication Team. Chaussée St Pierre 260. 1040 Brussels, Belgium*

E-mail: cpa@aeidl.eu, Tel: 00320 2 736 56 43 – 226 (direct line)

Keywords: waste management, environment, European Union, innovation, recycling, reuse

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 European added value.

With regards to waste management, LIFE facilitates the implementation of all European regulations about waste and landfilling, including, among others, the Landfill of Waste Directive and Waste Framework Directive. LIFE does this by co-funding innovative projects that improve waste prevention, recycling and reuse technologies and processes in a wide variety of sectors all over Europe. Out of the [3 954 initiatives](#) supported by LIFE to date, 520 have been exclusively on waste, with almost 380 million euros allocated. In fact, waste management is the theme most often tackled by the Programme.

In particular, LIFE has focused on demonstrating innovative technologies for recycling specific materials from different waste streams, such as hazardous, agricultural or municipal waste. The Programme has also frequently demonstrated the links between waste management and other environmental topics, such as climate change or the protection of water resources. 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.

Below you can find some good examples of LIFE projects on specific waste-related themes:

Energy from waste: [BIOAGRO](#) developed an innovative method of producing high-quality fuel in pellet form from biomass waste from grain, seeds and grass. The project produced different environmentally-friendly and combustion-efficient pellet mixtures ('bioagropellets'), as well as designing and constructing an integrated furnace system that avoids ash melting and adapts easily to different pellet recipes. In terms of waste management, it managed to reuse 100% of the organic waste produced by the facility. It also succeeded in coupling the burning system with seed drying and heating systems, resulting in both energy savings and cuts in greenhouse gas (GHG) emissions, especially methane. Fully implemented, the method has the potential to reduce the discharge of GHGs in Sweden by 10% and in the EU by 2.5%

Decision-support tools for better waste management: [FENIX](#) developed a user-friendly and flexible software tool to assist municipalities and other territorial bodies to improve their management systems for packaging waste. The tool developed uses a life cycle thinking (LCT) approach that allows the model to be adapted to real

situations. The software generates rapid and scientifically-robust results by allowing the user to introduce and interchange a wide range of parameters, such as the amount of waste generated, the type of vehicle used to transport the waste, the number of and distance between containers, the distance between the municipality and the treatment plant and the percentages allocated to each type of treatment.

Landfilling: [CONWASTE](#). To close former industrial landfills it is necessary to use substantial amounts of natural construction material to obtain the surface profile and sealing. These materials have to be taken from other non-contaminated areas, thereby damaging the environment. To help solve this problem, CONWASTE demonstrated that some waste materials, such as ashes and sewage sludge, are valuable mineral resources for site-specific landfill sealing. This project developed a two-layer remediation system (a sealing layer and a cultivation layer) consisting of mineral materials derived from soil remediation, debris, ashes and sewage sludge. The mixtures developed proved efficient in minimising pollutant migration (because of their low hydraulic conductivity) as well as in ligating atmospheric carbon dioxide.

Management of municipal solid waste: [OIL-PRODIESEL](#). In order to solve the uncontrolled problem of the disposal of municipal used frying oils, this project developed and implemented an integrated system for the production of biodiesel from domestic frying oil. It constructed a biodiesel processor prototype and established 20 collection containers, evaluating the opportunities for the biodiesel produced. The final result is a biodiesel that reduces CO₂ emissions by 15% compared to standard biodiesel, and also reduces the concentrations of oils and fats (from 103.2 mg/l to 52.0 mg/l) and hydrocarbons (from 11.1 mg/l to 3.3 mg/l) in wastewater. Sulphur dioxide, particulate matter and carbon monoxide (CO) emissions are also reduced. The fuel was used to good effect in six vehicles belonging to Oeiras municipality's transport fleet.

Management of specific waste streams:

. **Plastic:** [RECIPLAS](#) introduced a new process that produces high-quality and 100% reusable plastic using waste from plastic laminate production for the automotive sector. The process consists of two phases: milling and homogenising of the plastic waste to produce a high-quality plastic pellet; and smelting of the pellet and injection to produce 100% recyclable, recoverable and reusable pallets. The process does not result in any structural damage to the material, allowing it to be continuously recycled and reducing the amount of plastic waste by around 3 000 tonnes per year. Also, as wood is no longer used to make the pallets, it is estimated that each plastic pallet produced saves one tree, equivalent in total to some 38 000 trees per year.

. **Glass:** [NOVEDI](#) demonstrated a series of glass-based cellular insulation materials that are obtained from recycled rejects from soda lime glass, front monitor glass, fibre glass and lamp and artistic glass. This glass waste, called 'special glass', is landfilled as it cannot be recycled by the glass container or the ceramic industry because of its particular chemical compositions. The project developed two certified products: glass foam suitable for lightweight structural concrete for the construction of roofs and floors; and glass foam suitable for super lightweight insulating concrete for walls. The process may be a viable

and resource efficient means of disposing of the 80 000 tonnes per year of special glass produced in northern Italy.

. **End-of-life vehicles (ELV's):** [ELVES](#) developed a system for high-quality separation of metal alloys from end-of-life-vehicle engines and their reuse in new engines and components for the automotive sector. The technology developed integrates different processes in one pilot plant: acoustic insulation, water-based dust particle extraction, granulometric classification, and bi-density flotation separation. The result is a methodology that allows different metal alloys (mainly iron, aluminium and heavy metals) to be separated from an ELV's engine with 99% efficiency. The plant is able to process 33 000 tonnes of ELV engines, with an estimated recovery rate of 15.6% or 5 148 tonnes/year of aluminium, saving 79 446 tonnes CO₂ and 947 million MJ of energy per year.

Therefore, in the context of the Athens 2014 2nd International Conference on Sustainable Solid Waste Management, LIFE proposes:

- A presentation of good practices and technologies on waste methodologies developed by the Programme.
- In the event of there being an exhibition space: Posters ([1](#), [2](#)), [technical brochures](#) and other publications on the contribution of LIFE to waste management.