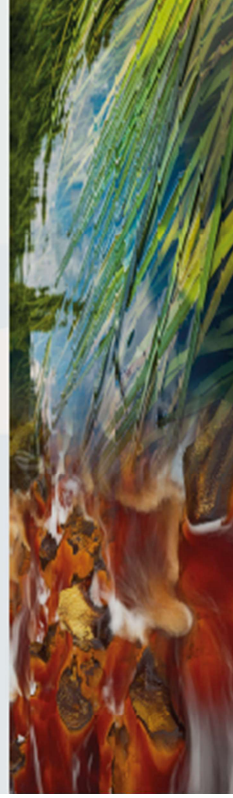


LIFE DEMINE

Decreasing the Impact of Abandoned Mines



Abandoned mines: an environmental time bomb

Mining activities cause serious environmental damage to freshwater ecosystems through the discharge of **polluted effluents**, which may contain high concentrations of **heavy metals** or **salts**, depending on the type of mine. This environmental problem is especially critical for **abandoned mines**, because there is no company in charge of treating these mining effluents, leaving a legacy of local and global pollution.



THE LIFE DEMINE project: an innovative solution

The LIFE DEMINE project aims to demonstrate and disseminate the technical and economic feasibility of decreasing the overall **environmental impact** caused by **mining effluents** from abandoned mines in water bodies.

This will be done by adopting an **innovative and versatile** treatment process that will combine existing and widely known technologies based on **membrane processes** (nano-filtration) and **electrocoagulation**. The LIFE DEMINE project will obtain a non-polluting final effluent to be discharged in water bodies with the minimal environmental impact. In accordance with the European Water Framework Directive (2000/60/EC).

The role of UVIC in the LIFE DEMINE project

Will the LIFE DEMINE technology reduce the ecological impact caused by mining effluents?

The efficiency of the new technology proposed in the LIFE DEMINE project (reducing the ecological impact caused by mining effluents on water bodies) will be assessed using stream bioluminescence and macroinvertebrates as **ecological indicators**. The UVIC will perform different experiments, in both micro and mesocosm conditions, to assess the response of these organisms to stream water containing mining effluents from abandoned mines **untreated or treated by the LIFE DEMINE technology**.

Environmental and economic impact of the LIFE DEMINE technology

To treat these mining effluents by running the LIFE DEMINE technology, it is necessary to consume energy (e.g. electricity), non-renewable resources (e.g. steel, fuel, etc.) and to manage the generated wastes (e.g. concentrated metal and salt effluents). All these activities are associated to several environmental burdens that must be considered and evaluated. Therefore, the whole environmental impact of the LIFE DEMINE technology will be assessed by UVIC using the Life Cycle Assessment (LCA). Hotspots will be methodology and criteria established by the ISO 14040 and ISO 14042. Moreover, it is important to ensure the economic feasibility of implementing the LIFE DEMINE technology at real scale, thus, its economic sustainability will be assessed by means of Life Cycle Costing (LCC) and Cost-Benefit Analysis, viable cost reduction measures will be evaluated if necessary.

