

LIFE Project Abstract

- 1. Sub-programme:** LIFE Environment and Resource Efficiency
- 2. Sector:** ENV Water
- 3. Member State of the coordinating beneficiary:** Hungary
- 4. Expected duration:** 3 years (2018. 07.03.- 2021. 07.01.)
- 5. Coordinating beneficiary:** ÉMI Non-profit limited liability company for quality control and innovation in building
- 6. Associated beneficiaries:** ÉGSZI SENIOR Research and Organization Ltd., Pannon University (Veszprém), Biocentrum Ltd.
- 7. Expected total project budget – EU financial contribution requested:** 1.000.000 EUR – 600.000 EUR
- 8. Short summary of the project:**

There is a serious contamination in the urban area of Szentendre, Pest country. There is a former Soviet military area contaminated with chlorinated aliphatic hydrocarbons (CAHs), as a result of surface treatment of military vehicles. The following pollutants entered into the soil and the groundwater:

- trichloroethylene (TCE),
- tetrachloroethylene (TeCE),
- cis-1, 2-dichloroethylene (cis-DCE)
- vinyl chloride (VC)

Tetrachloroethylene (TeCE) and trichloroethylene (TCE) are mainly used for industrial degreasing and are transformed into cis-1, 2-dichloroethylene (cis-DCE) and vinyl chloride (VC). The main health hazard is vinyl chloride (VC) that is proven to be carcinogenic. At the contaminated spit area, the calculated carcinogenic and health risks are significantly high. The vast majority of the contamination is concentrated about 7.5 meters below surface.

The degree of the contamination is so high that it also reached wells in the nearby waterworks, three of which had to be shut down. The contamination has already spread from the barracks, it reached the ÉMI Industrial Park and constantly endangers its water base.

The above listed pollutants hinder the development of the ÉMI Industrial Park. The management of ÉMI has decided to eliminate the contamination with the help of the LIFE programme. Considering the current and planned land use and the damaged water resources of the territory, the elimination of the contamination is indispensable. The consortium led by ÉMI Nonprofit Limited Liability Company for Quality Control and Innovation in Building developed a methodology allowing 3 materials (alginite, perlite and zeolite) found in Hungary,

to dissimilate the contamination and clean contaminated water. In addition, alginite is a nutrient for bacteria, therefore there is no need to add substrate. During the dissimilation, the pollutant transforms into a solid state. In contrast to the practices and technologies that have been used so far, this innovative system ensures that there are no hazardous substances during cleaning, which has to be treated by disposing the soil or burning it. That means that, as a result of the process, there are less emissions and polluting materials generated. Although the features of the 3 materials are known, they have not been used in Hungary for cleaning in such high scales (1,200,000 m³ water, 24.35 ha area).

For this reason, this could be a demonstration project proving that these materials are suitable for the elimination of similar groundwater contaminations in other Member States of the European Union as well. By the end of this project, 1.200.000 m³ water will be cleaned, contributing to the improvement of the safety and wellbeing of the employees working in ÉMI Industrial Park, as well as the wellbeing of citizens living nearby. With the use of this method in other European countries, the reduction of health risks can have a positive effect on the lives of millions of people.

- 9. Main project goal:** The main goal is to apply alginite, zeolite, and perlite in order to clean a total of 1,200,000 m³ of water, improving people's quality of life directly, but the technology can be widely used after that throughout Europe.

10. EU legislation background:

- Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration
- Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy
- Directive 2008/1/EC of the European Parliament and of the Council concerning integrated pollution prevention and control
- Commission Directive 2014/80/EU amending Annex II to Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration Text with EEA relevance
- Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances
- Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources
- Directive 98/8/EC of the European Parliament and of the Council concerning the placing of biocidal products on the market
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

- 11. Projects whose results the project is planned to be built on:** e.g. LIFE BIOREST, LIFE CHARM, LIFE REGENERA LIMIA, LIFE WARBO