

# **In situ sludge consolidation: a sustainable and ecological solution for sludge disposal in river beds or landfills?**

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Contaminated inorganic sludges, coming from River bed sediments or from industrial production processes, are causing worldwide a large threat for humans and ecology. This is not only related to toxic compounds, but also by the large amounts of sludges that are disposed in landfills. These landfills are not always safe and every year several dam breakages lead to large environmental disasters.

Ex situ techniques are commonly practiced to obtain a better dewatering and consolidation of the sludges as pretreatment for disposal in new landfills. However, in old landfills these pretreatments were never done and even after many years the landfills are still leaking, and the sludges contain high concentrations of water and are still liquid.

Reduction of the water concentration in the sludge would increase the geostability, decrease the leaching of toxic compounds and reduce the sludge volume in the landfill. This leads to an increased disposal capacity, which is of high economic importance, especially for dredging sludge and mine tailings.

This presentation will describe the 'In situ sludge consolidation' project executed in Flanders in the framework of the *Environmental Technology Platform* (MIP). It is executed by 4 research centers, 8 companies (of which 2 SMEs) and 2 public organizations. The approach of in situ dewatering technology combined with the addition of reagents for improving the coagulation-flocculation will be discussed, as well as biological stabilization methods. Special attention will be paid to the injection and mixing technologies, as well as to methods for water removal.

The in situ dewatering will be combined with chemical and biological techniques to degrade or immobilize pollutants in the sludges. The latter will also be useful for in situ treatment of toxic compounds (e.g. PCBs, PAHs, TBT, dioxins, heavy metals, ...) in river bed sediments.

The first results of laboratory testing for landfill and river bed test sites will be presented

