

## **Deliverable B 4-1**

### **Performance of Engineered Soil as construction material in the pilot landfills**

The current deliverable is an outcome of Action B.4 “Scale-up of stabilization technology; Pilot-plant trials at landfill site”.

The use of the stabilized mixture as construction and restoration material was tested in realistic condition and a pilot scale application of the engineered soil produced had to be tested as landfill construction and landfill layering material.

The study presented in this deliverable reinforces the previous studies showing that the Engineered Soil can be used as landfill construction material due to its physicochemical properties: low leachability/extractability of elements, proper particle size distribution, non-flammability and low water permeability. The present study provides additional evidence that the Engineered Soil can find use as daily cover, bottom layer or vegetation cover in landfills without causing adverse effects in the operation of the landfill.

It is found that the concentrations of pollutants in the leachates of the pilot tests are of the same order of magnitude or even smaller than those of the Attica Landfill leachates. This means, that the use of the Engineered Soil as landfill construction material does not adversely affect the composition or the concentration of the leachates. After proper treatment, the leachates meet the criteria in order to be reused for irrigation purposes within the landfill boundaries, along with the Attica landfill leachates.

Also tests have been carried out at the assessment of the engineering soil as a vegetating cover material for rehabilitation and restoration purposes, e.g. in quarries, landfills. Plants seemed to be durable of vegetation both in engineering soil and in different mixing of soils. All plants in engineered soil developed good growth with no foliage toxicity and infections.