

## **DESCRIPTION FOR THE GENERAL PUBLIC (IN ENGLISH)**

Each of us contributes to the generation of sewage. Prior to its introduction to the waters sewage requires treatment. In the course of sewage treatment sewage sludge is produced. Sewage sludges, although they are some kind of waste, can be used to fertilize soils due to the nutrients they contain. Therefore, the method of sewage sludge application to soils is an interesting method of its utilisation. It permits the recovery of valuable material from the sludge, and at the same time reduces the use of mineral fertilisers. Depending on the origin, however, sewage sludge can contain also dangerous substances. Before sewage sludge can be applied to soils it is necessary to neutralise those toxic substances. The neutralisation of contaminants can be effected through the addition of certain substances to the sludge that will reduce the mobility of the contaminants and their uptake by plants and soil organisms. Biochar (charcoal) is a material, which immobilises contaminants very effectively, and in addition has fertiliser properties. The use of properly designed biochars, so-called engineered biochars (smart biochars) can significantly enhance this effect. Supplemental of sewage sludge with biochar during composting can reduce the bioavailability, mobility and toxicity of contaminants. Composting will also permit the obtainment of more stable material, with better fertiliser properties than sewage sludge alone. The use of smart biochars during composting may additionally result that the nutrients present in sewage sludge being released into the soil gradually as the plants need them. This will reduce significantly the uncontrolled release of nutrients to the environment during the use of sewage sludges or composts, which will significantly reduce their negative impact on the environment. The objective of the project is to conduct a series of experiments which will permit the optimisation of the process of composting of sewage sludge with biochar so as to obtain a valuable fertiliser and at the same time to reduce the negative effect of sewage sludge on the environment.