

Biofilter in Tampere

Hiedanranta is an old pulp mill area located four kilometres from the city centre of Tampere, by the shore of Lake Näsijärvi. The city decided to construct a biofilter in this site to clean leachate from the old pulp mill landfill. This NBS demonstration is a first attempt for the city to purify leachate from a contaminated site in situ with more advanced filtering materials.



The reasons behind the initiative included the city's intent to develop the qualitative management of storm water, the reports of disturbing odours from users of the area, and the interest of a biochar factory in Hiedanranta to promote the use of biochar in storm water management. The biofilter was co-created with several stakeholders and has been operational since December 2018.

Quick facts

Site: Old landfill of a pulp mill, new city district

Aim: Removal of nutrients from landfill leachate

Cost: 70,000 EUR

Filtering material: Biochar, peat, Leca-gravel

CHALLENGES



Flooding



Water pollution

BENEFITS



Improved water quality

CO-BENEFITS



Enhanced biodiversity



Recreational use

Technical specifications



The landfill leachate, which contains nitrogen and phosphorus, is led through a filtration area which is about 100m² and 3 metres deep. The biofilter consists of different filtering layers and the novel filtering materials used are biochar, peat and Leca-gravel.

Deep-rooted bushes and perennials native to the area were planted on top of the filter to retain water and nutrients. At first, the biofilter seemed to function effectively in cleaning the water (reduction N 80% and P 90 %), but its insufficient capacity soon became evident. The inflow volume (over 80 m³/day) is higher than expected and the quantitative treatment capacity (about 40 m³/day) of the filter is lower than expected. The qualitative treatment results have also decreased. Works are underway to analyse and solve these problems.

Monitoring



Water quality & quantity



Biodiversity



Recreational use

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