

## Newsletter 4 , January 2018

### INSURE

INSURE (Innovative Sustainable Remediation) is a four year EU/ Interreg Central Baltic funded project running from September 2015 to August 2019. The project is a collaboration between seven partners from Sweden, Finland and Latvia. INSURE focuses on protecting the environment in the Baltic Sea region by developing technical tools for prioritization and visualization of contaminated sites, improving communication between different stakeholders and putting research effort into different sustainable treatment methods themselves.

#### INSURE partners:

- [County Administrative Board of Östergötland, Lead partner \(Sweden\)](#)
- [Motala Municipality \(Sweden\)](#)
- [University of Helsinki \(Finland\)](#)
- [Populus Group Oy \(Finland\)](#)
- [The Latvian Environment, Geology and Meteorology Centre \(Latvia\)](#)
- [Vidzeme Planning Region \(Latvia\)](#)
- [Valmiera City Council \(Latvia\)](#)

### Lahti project meeting, 3-5<sup>th</sup> of October 2017

In the beginning of October, a three day project meeting was held in Lahti in the premises of LADEC and the meeting host, University of Helsinki. The theme of the meeting was sustainable remediation.

Among the invited speakers were Jaana Sorvari of Aalto University, Björn Johansson of Swedish Environmental Protection Agency and Tuomas Piepponen of the contractor Nordic Envicon Oy. Also several experts from within University of Helsinki presented topics connected to remediation and other project interests. A study visit was made to Soilia, a field research station owned by LadeC and operated by UHEL.



## Sustainable remediation

University of Helsinki, together with Populus Group Oy, is developing sustainable alternatives to conventional treatment methods for contaminated sites, to minimize the need for removal and transport of the contaminated masses thus leading to considerably lower process-bound CO<sub>2</sub> emissions.



### Site Villähde, Finland

A site in Lahti was contaminated in the early 2000s due to a heating tank filling accident. The remediation has been made difficult by the fact that the contamination was under built structures and deep within soil. In the fall of 2016 the site was successfully treated by introducing nutrient amended water to enhance microbial growth and by securing its horizontal dispersal with electro-osmosis. The site was considered clean by an independent consultant and no further actions on the site are therefore required.

### Site Motala, Sweden

Södra stranden is an attractive area close to lake Vättern and Motala City in Sweden. The area is to be restored for residential use by dealing with the prevailing contamination with methods similar to those used in Lahti.



The situation was monitored in December 2017 with members of UHEL and Motala community present.

### Site Virrat, Finland

An industrial site, situated in a lake district in Pirkanmaa, has been contaminated with oil hydrocarbons and with heavy metals. Phytoremediation, carried out by Populus Group Oy, was chosen as the most suitable remediation method. The contractor used is the Natural Resources Institute Finland, LUKE.



In 2017 two spots on the site were still found to have very high concentrations of hydrocarbons and heavy metals respectively, and they had to be removed by excavation before starting of the planting. Hybrid aspen and European aspen seedlings were chosen for the phytoremediation. Altogether 1200 aspen seedlings in 17 planting blocks were planted during 2017.

The DNA from the samples was isolated and PCR amplified for identification of bacteria and archaea in the contaminated soil. The DNA samples have been sequenced in late 2017 and the bioinformatic analysis will start in 2018 to figure out the microbial communities in soil.



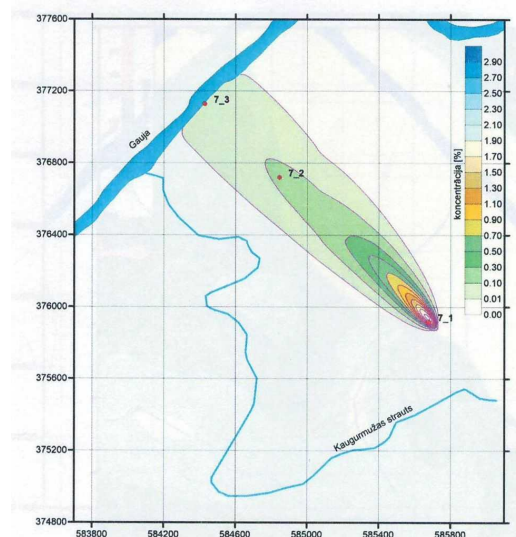
The Virrat pilot site was photographed using DJI Phantom 4 remotely piloted aircraft system (RPAS) in October 2017. The pictures will be used for making GIS maps of the phytoremediation.

## A meeting of Latvian partners

In 05.01.2018 meeting between Latvia partners was held in Valmiera city representation office in Riga. Representatives from Valmiera city, Vidzeme planning region, Latvian Environment, Geology and Meteorology Centre (LEGMC), Riga Technical University and consultants took part. The meeting topic was research results in Valmiera site. The consulting company used during the research had estimated the potential volume of the polluted soil as well as the polluted area size.



Riga Technical University presented groundwater pollution modelling results in the Valmiera site. General conclusion was that larger amount of data leads to more detailed results.



In Valmiera's case the potential direction of the pollution is to river Gauja. Pollution could reach Gauja in 60 years. The modelling was based on Groundwater Vista software, which was adopted for territory of Latvia.

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This newsletter was provided by The University of Helsinki, Lahti.

