

Newsletter 7, May 2019

INSURE (Innovative Sustainable Remediation) is a four year Interreg Central Baltic project running from September 2015 until August 2019. The project is a cooperation between partners from Sweden, Finland and Latvia. INSURE have worked to decrease the distribution of hazardous substances to the Baltic Sea and make the remediation of contaminated sites more frequent and sustainable.

Final Conference Norrköping, Sweden

In the beginning of April (9-11th), all project partners gathered for the Final Project Meeting.

On the 10th of April, around 80 people took part in the INSURE Final Conference in Norrköping, Sweden. During the day the project partners presented their work and the results from the project. Two external presenters talked about the monitoring of the Baltic sea and thin-layer capping with reactive sorbents as an inspiration for future work. There was also an exhibition showing results from the project that the participants could take part of.

All presentations from the Final Conference are available on the INSURE website, www.insureproject.se



*Project partners together with Norrköping Municipality, visited Norrköping inner harbour .
Photo: C. Emenius*

Summarizing Pilot Sites

The work with the pilot sites is soon coming to an end. Below you find information about the status of some of the pilot sites in the projects.



*Soil sampling for pollution testing at Valmiera site
Photo: Liga Biezina*

Valmiera Territory 9 Dzelzcela Street – Pilot testing finalized

On 24 April 2019 the testing of electro-kinetic biostimulation method in Valmiera site was finalized.

The site was visited by prof. Martin Romantschuk and Mr. Harri Talvenmäki and by the contractor Vides konsultāciju birojs Ltd., taking the third round of ground and groundwater sampling for testing.

In February 2019 the analysis on the alternatives for the site sanitation, their risk assessment and most appropriate remediation alternative for Valmiera site was developed.

Five alternatives were evaluated:

- the ex-situ method
- the in-situ with ground solidification and stabilization
- the in-situ using the electro-kinetic biostimulation
- the in-situ phyto-sanitation and “zero” or “no action” scenario.

Evaluating the risks and the cost-effectiveness as technically and economically most appropriate soil remediation method was the soil solidification and stabilization admitted.

The main advantages of this method are its sustainability, waste as a “resource”, optimal costs, limits the migration of soil pollution from nearby territories, no extra-expenses on the development of a remediation technical-project and on transportation expenses and others. Nevertheless the main faults of this method are the remaining pollution that diminishes also the variety of the land usage opportunities.



*Ground drilling or soil sampling at Valmiera site
Photo: Liga Biezina*



Phytoremediation is tested at the site. The seedlings of planted hybrid aspens have been marked with red flags.
Photo: Niina Lallukka

Virrat – test site in Finland

One example of pilot tests and collaboration with different stakeholders is site Virrat. After the withdrawal of Populus Group, UHEL has been responsible of reporting the situation there. The site was inspected in May, when UHEL visited the site together with a representative from Natural Resources Institute Finland (LUKE). During the visit, we were able to share our knowledge and develop potential cooperation with other contaminated sites.

In Virrat, phytoremediation has been tested to remediate oil-polluted soil. For this, hybrid aspens have been planted at the site. Due to dry last summer, the aspens had not grown as well as expected. However, the plants survived and will recover. Hopefully the coming summer is not as hot and dry. The experiment will continue until 2026 under the control of LUKE.

Gaides Iela, Vidzeme – pilotsite investigation results

The pilot site chosen by Vidzeme Planning Region (VPR) is a former oil base of total area of 0.97 ha. Almost 2 years VPR worked with the complicated ownership issues of the chosen pilot-site to get permission for site investigations.

In November 2018, VPR got acceptance from some of the owners to conduct the pre-remediation detailed geo-ecological investigation in part of the former oil base in order to determine characteristics, volume and extension area of groundwater pollution with oil products, as well as its migration potential and its implication on environment.

Key methods investigations

The key methods applied during the investigation were the following:

- 1) contamination investigation with in-situ direct geophysical method, using probing with laser-induced fluorescence (LIF) method that was realized using UVOST equipment;
- 2) contamination investigation and soil/ground sample collection with ground drilling method;
- 3) groundwater sampling;
- 4) pollution free phase detection with oil products NAPL (Non-Aqueous Phase Liquid) measurement method;
- 5) detection of collector filtration qualities with hydrodynamic pumping method.

The investigation revealed that the major part of the investigated territory is contaminated with oil products. Territory remediation alternatives, risk valuation and remedial alternative selection in the territory of the former Valmiera oil base was also evaluated. A combination of in-situ hydrodynamic pumping method, installation of an in-situ filter reagent barrier and in-situ soil stabilization has been chosen as the most suitable alternative for remediation.



VPR pilot-site in Valmiera. Photo: VPR

National topicality of the contaminated sites management issue in Latvia

In February this year, Vidzeme Planning Region (VPR) held a regional discussion in Valmiera to present the elaborated strategy for management of contaminated and potentially contaminated sites. Since this event highlighted the topicality of the contaminated sites management issue, on May 28 VPR is organizing another event for the municipal development specialists, spatial planners, environmental specialists and specialists from regional environmental boards.

The aim of the event is to discuss more thoroughly the challenges and opportunities for management of contaminated and potentially contaminated sites in Latvia. It will be organized in cooperation with other Latvian project partners, inviting Helsinki University representative to take part. It is the national closure event of INSURE project in Latvia, disseminating the lessons learned within the project.



Investigation on the VPR pilot-site, March 2019. Photo: VPR

Country Administrative Board of Östergötland

A major part of the work carried out by the County Administrative Board of Östergötland has been about developing better methods for our work with supervision and enforcement including sustainable remediation.

Finding better methods for supervision

In one of the activities, we have focused on supervision at enterprises and their means of handling contaminated sites in the self-monitoring process. To find better ways of structuring the work we try to support operators by introducing the tool "plans of action". Plans of action is a method where the operators make priorities for their work with contaminated sites that is satisfactory for both operators and supervisory authorities.

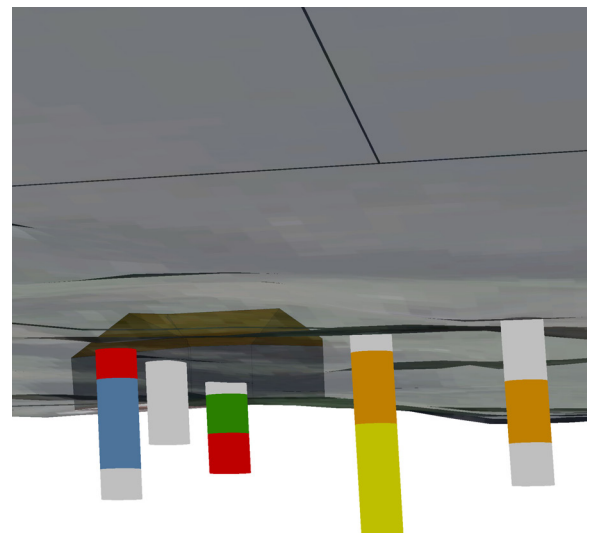
By working in a more structured way with contaminated sites the operators can gain better results. Better planning also makes it easier to consider sustainable remediation methods at an early stage. So far, we have informed and had a dialogue with 18 enterprises about this new way of working. About 10 enterprises also have produced their first version of a workable plan. Our work with plans of action will continue after INSURE has ended.

GIS as a tool for visualization

The County Administrative Board of Östergötland have, during INSURE, had the possibility to develop our way of working regarding GIS and contaminated sites. GIS- layers have been developed for both investigated and remediated contaminated

areas. The layers help us to visualize where investigations and remediation have been carried out in the region and the maps will help us in the decision making where further investigations are needed.

Contaminated sites are often very complex. A 3D-model of a dioxine-contamainted area was developed in the project to better understand and evaluate a contaminated area. This way of working could hopefully also be useful for other contaminated areas to better visualise the results from investigations. An animation of the 3D-model are available on [youtube](#).



Pictures from the 3D modelling.
Photo: County Administrative Boards Östergötland, GIS department

Partner Reflections of the project



Photo: C. Emenius

INSURE is now coming to an end and we can now start to see the results of the project.

As project managers we have followed the project since before the application and have seen the project develop from ideas on notebooks to real results.

Although the projects have faced some challenges during the years, we can now proudly say that the project have created good results in all work packages.

We hope that the results will be widely spread and used by as many as possible. In INSURE we have combined the knowledge from different types of organizations such as authorities and researchers. We believe that the combination of different experience is important also for the future when we continue the work with reducing the inflow of hazardous substances and toxins to Baltic Sea.

/Jenny Hultgren and Magnus Kviele,
Project managers

Reflections of the Latvian Environment, Geology and Meteorology Centre

In INSURE we achieved many practical results.

We received good experience in many fields of action - contaminated sites information gathering, groundwater contamination modelling information collection, procurement procedure management, technical possibilities of GIS etc.

Now work with legislation changes shows how important it is with a structure of information. Furthermore, education and understanding of involved stakeholders is also very important to achieve desired results.

As project coordinator also project management skills were improved.

/Intars Cakars, Head of Chemicals and Hazardous Waste Unit, Latvia



Team from Latvia. Photo: Intars Cakars



Sampling at the pilot site Valmiera on September 2018. Sampling and installations were executed in collaboration with contractor Vides Konsultāciju Birojs. Photo: Niina Lallukka

Learning outcomes from the University of Helsinki

In the INSURE project, University of Helsinki (UHEL) was responsible for developing, investigating and testing sustainable remediation methods for contaminated sites.

Finance and communication

In our experience, the push towards the more sustainable treatment of contaminated sites often has to be justified through financial or other easily quantifiable benefit to the individual or institute, such as communities, site owners or contractors. This means that communication with and between these stakeholders is of utmost importance when considering how to proceed in making these tools available and more commonly used.

Holistic Approach

Another factor is that a risk-based assessment of the benefits and hindrances of different methods may discourage progress in this field. Luckily, during the INSURE project we have learned that there is a de-

finite change towards a more holistic way to handle these situations. In addition, we have learned that there is a growing interest within all different stakeholder groups to learn how to do things differently.

Exchanging knowledge

For UHEL, a chance to both collaborate with these groups and to learn of the bureaucracy behind treatment decisions, in three different countries, was a priceless opportunity.

Testing methods

Having six different sites for testing different methods gave us a rare opportunity to study the factors that dictate whether our method is applicable to the site in question and if not, what to do with the fact.

To encourage all the people to whom a conclusive treatment of their home site was the main concern, we would have wished to have gained even better results.

Sufficient research period

However, when the time was there for us to be able to study and re-adjust our approach, positive outcomes were achieved even in unoptimistic conditions. This luxury was allowed to us through the generous four-year project duration.

/Project team University of Helsinki

Learning
outcomes?

INSURE

Innovative Sustainable Remediation



Have you learnt
anything from
the project?



"The most interesting have been the pilot-site testing results."

Līga Biezina
Valmiera Municipality



"Diverse remediation solutions. The most interesting have been the wide spectrum of various methods that can be used."

Sandra Karuša and Linda Fibiga
Latvian Environment Geology
and Meteorology Centre



"A lot! Among other things I have learnt more regarding innovative sustainable remediation strategies for supervision and prioritization"

Åsa Rahm,
Motala Municipality

"This project have given us a great opportunity to develop our own supervision methods. I have learnt more about sustainable remediation methods, risk valuation and how they work in Latvia and Finland."

Marcus Gustafsson, Östergötland
County Administrative Board



"We have achieved a strategy for handling contaminated site prioritization and site investigations."

Maija Rieksta
Vidzeme Planning Region



"Lots of people find this study important and interesting"

Harri Talvenmäki
University of Helsinki
(UHEL)

INSURE partners

- [County Administrative Board of Östergötland](#)
Lead partner, Sweden
- [Motala Municipality](#), Sweden
- [University of Helsinki](#), Finland
- [The Latvian Environment, Geology and Meteorology Centre](#), Latvia
- [Vidzeme Planning Region](#), Latvia
- [Valmiera City Council](#), Latvia
- [Populus Group Oy](#), Finland (2015-2018)

This Newsletter was made by County Administrative Board of Östergötland

www.insureproject.se



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ÖSTERGÖTLAND