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The Integrated system for environmental monitoring and reporting


Results
The analysis of heavy metal content in soil samples showed that remediation values were exceeded for cadmium, zinc, copper, nickel, mercury, and arsenic;
Analysis of the pesticide content and their metabolites in soil samples showed that remediation values were exceeded for DDE/DDD/DDT and atrazine;
Concentrations of total PCBs, PAHs and mineral oils exceeded the limit values, but did not exceed the remediation values;
Analysis of the content of phthalate esters shows that the content of phthalate esters is higher than the remediation value in 319 out of a total of 1,130 samples – more than 25% of total samples (State of the Environment Report for 2022, SEPA, 2021).
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and processing of data on CS
• Simplification of communica between state authorities and public
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Common objectives of ISCS development
WEB
Create "smart" information system based on a new technologies (WEB interface, powerful database management system)
Dissemination of official information on CS to public in modern and attractive form (web services)
Improvement of the quality of systematic gathering and processing of data on CS
Simplification of communication between state authorities and public
WCAG3
K REPUBLIC
BER 2022


AGENDA


Thanks for your attention.
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River Basin Management Plan
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with conditions or non-acceptance of sug
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Drawing up draft of development principles
Draft of development principles is procured
by regional office upon assignment or report on development principles implementation according Building Act,
publicly discussed and agreed with all respective authorities.
Regional office shall ensure assessment of impacts on area sustainable development to draft of development principles.
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Situation in 2012
PLUME OF CHLORINATED HYDROCARBONS (cutted off)
- Quaternary aquifer of the Morava River
- spreading in the SE direction approx. 50 m/year
- range: 5 km x 1 km, thicknes-25 m
KEY CONTAMINANTS
• PCE (tetrachlorethen)
- toxic, potential human carcinogen
max 70 - 152 µg.l-1 / 10 µg.l-1
• TCE (trichlorethen)
- toxic, potential human carcinogen
- max 52,9 - 266 µg.l-1 / 35 µg.l-1
• 1,2-cis-DCE (dichlorethen)
- the most extensive
- toxic, potential human carcinogen
- max 45,2 - 122 µg.l-1 / 30 µg.l-1
• VC (vinylchlorid)
- high toxic human carcinogen !
- max 61 - 150 µg.l-1 / 10 µg.l-1
Spread of pollution (total CIU) - situation in 2012
Contaminated sites 2022, Senec
13. October 2022
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Inventories of contaminated sites
Lithuania has carried out a thorough mapping of potentially contaminated sites. The Geological Survey of Lithuania is responsible for collection and maintenance of all data related to subsurface investigations of the country.
(EEA, 2014)
Inventories for contaminated sites
National central inventory
Decentralised inventories
No data
Outside coverage
At EU level, 650 000 of CS have been registered in national or regional inventories,
65 500 contaminated sites already have been remediated.
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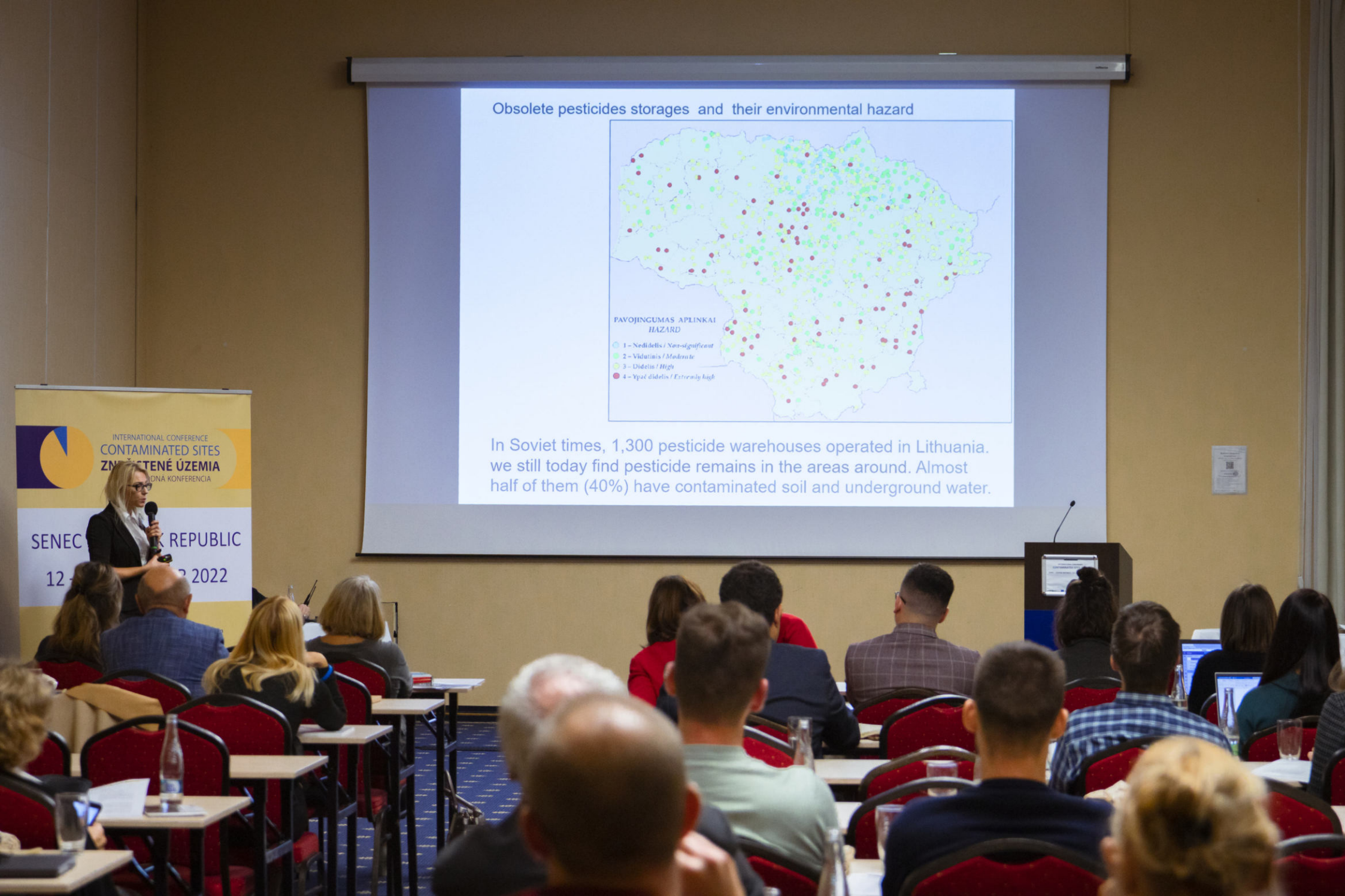
Obsolete pesticides storages and their environmental hazard
PAVOJINGUMAS APLINKAI
HAZARD
1 – Nedidelis / Non-significant
2 – Vidutinis / Moderate
3 – Didelis / High
4 – Ypač didelis / Extremely high
In Soviet times, 1,300 pesticide warehouses operated in Lithuania. we still today find pesticide remains in the areas around. Almost half of them (40%) have contaminated soil and underground water.
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The Site of ORLEN Unipetrol Landfills area
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INTRODUCTION
Risk assessment Actualization
Risk Recipients:
Mračný Creek (Bílina River), Lake Most
Geology:
Most basin, subpart of North-bohemian basin, with the
Palaeozoic crystalline bedrock (orthogneiss) and Mesozoic and
Tertiary sedimentary fill (conglomerates, quartzites, sandstones,
marlstones, lignite, and clays), anthropogenic cover (wastes)
Hydrogeology:
1. Shallow aquifer in quaternary silty/s ravels, the upper
zone of isolating clay, dumped mini gs and landfilled
wastes (ashes, soot, etc.).
2. Isolating unit of tertiary clays and s – 200 m
thick), K = 10-10 - 10-11 m/s.
3. Deep aquifer > RISK?!
6 of 3
EPS biotechnology, s.r.o.
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EPS biotechnology


Seepage into the old deep mine aquifer?


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REPRESENTATIVE CONCENT
IN A QUANTITATIVE RISK ASSESSMENT
Jiri Ty
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Alternative approach for quantification of an on-site health risk
• In many cases, it is possible to avoid the indicated complications in the specification of representative concentrations by completely abandoning their determination and proceeding in one of two ways, which allow to directly define subareas with a different risk levels within the whole site.
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Classification of Indian Cities
Category of urban area
Population Criteria
Number of towns in the category
Towns/ Urban Agglomerations
>5000
6166
Class I UA/Town
>100,000
468
Million Plus UAs/Towns
>1,000,000
53
Mega Cities
>10,000,000
3
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FUNCTIONS FOR COMPOSITE HAZARD RATING OF A WASTE
Amit Kumar[1,*], Manoj Datta[2], A. K. Nema[2], R. K. Singh[3]
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KEYWORDS
Composite hazard rating, C
ABSTRACT


the framework of national project
the quality of environment in Slovakia.
Operational programme Quality of Environm
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Jiří TYLČER


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PHYSICOCHEMICAL CHARACTERIZATION OF DIFFERENTLY SOURCED BIOCHARS AND THEIR POTENTIAL USE FOR THE PHYTOSTABILISATION OF SOILS POLLUTED BY TRACE ELEMENTS
LBLGC
Introduction
Field phytomanagement strategy
Biochar addition
Before
After
Limits the transfer of pollutants by wind and water erosion
Protected area
Limits soil erosion
Limits leaching to the groundwater table
Biochar addition to soil
↗ Soil water holding capacity
Provision of nutrients
↘ Pollutant concentration in soil pore water
↘ Pollutant phytoavailability
↗ Soil microorganisms diversity and quantity
Biochar as potential strategy to remediate contaminated mining soils (Lee et al. 2022)
Methodology
Results
Conclusion
References
Acknowledgement
NESCAFÉ
Alegria


Inčukalns acid tar ponds - why dangerous?
Acid tar - toxic, chemically complex and aggressive substance;
Hydrogeological window;
High risks to water resources – river Gauja, the Baltic sea;
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The contaminated site of Pontgibaud
Pontgibaud district (Auvergne-Rhône Alpes, France)
Former Pb-Ag extraction mine
Exploitation until end of XIX^th century
Study site: deposit for crushing of ore
(GPS: 45°47'27"N; 2°49'38"E)
© Domenico Morabito
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The contaminated site of Pontgibaud
Need to reduce erosion and leaching risks
= Protect the surrounding area
→ Implementation of a vegetation cover
→ Requires amendments
Polluted area
Wind erosion and PTE transport
No vegetation
Soil polluted by PTE
PTE leaching to the groundwater
Area subjected to PTE contamination
Polluted particles deposit
Vegetated area
Amended soil
PTE Stabilization
Limit PTE leaching to the groundwater
Area protected, less PTE deposit
Lebrun et al. 2022. Assisted phytoremediation (pp. 101-130)
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Manhattan Lebrun


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Almadén
Canteras quartzite
Armorican quartzite
ORDOVICIAN
Almadén type mineralizations
Las Cuevas-type mineralizations
Pilar del Legua-type mineralizations
Ordovician
Precambrian
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Pablo Higueras


The Almadén mercury mining district
The district has been the subject of a large number of scientific research, aimed to understand the dispersion and fate of mercury in the different environmental compartments represented in the area
- Water and sediments: extremely high values in the proximity of Almadén, decreasing away downstream
- Soils: highly polluted, depending on the presence of Hg mines, prospects and showings
- Air: very extremely high values during mining and metallurgical activity. Very low values after the closure and reclamation
- Total affected area: some 125 km²
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The Black bass (*Micropterus salmoides*)
This fish corresponds to a piscivorous species introduced in Almadén (and most of Spain) as an species for sportive fishing; but it has been also extensively fished for human consumption
It is particularly well spread in the main hydrologic basin coincident with the Almadén syncline and Hg mining district:
- **The Valdeazogues** (meaning mercury valley) **river system**
Up to date, no data on Hg concentration in this species has been studied and published for this area
Image: https://www.cotodepezca.com/pescar-black-basses-inactivos-utilizando-diferentes-tecnicas/
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ERA
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MILJØ-DIREKTORATET


INTERNATIONAL CONFERENCE
CONTAMINATED SITES
ZNEČISTENÉ ÚZEMIA
MEDZINÁRODNÁ KONFERENCIA
SENEC | SLOVAK REPUBLIC
12 – 14 OCTOBER 2022
Contaminants Treated
Oxidative/Aerobic
Either
Reductive/Anaero
Petroleum Hydrocarbons
Phenols
Chlorinated Solvents
Heavy Metals
BTEX
Oxygenates
Energetics
Pesticides & Herbicides
PAHs
Chlorobenzenes
PCBs
Fluorinated Compounds
1,4-dioxane
Arsenic
Products
EHC Liquid
EHC Reagent
Daramend Reagent
PermeOx Ultra
Terramend Reagent
KLOZUR
METAFIX
EVONIK


Evonik Soil & Groundwater Remediation
Field-Proven Portfolio of Inductive Remediation Technologies


PFAS = Per- and polyfluoroalkyl substances
eurecat
PFAS
PFOS
PFOA
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12 – 14 OCTOBER 2022
LIFE SOURCE


UTILIZATION OF ENERGY CROP's MISCANTHUS × GIGANTEUS BIOMASS CULTIVATED IN THE POST-MINING AND POST-MILITARY SOILS
Prof. Valentina Pidlisnyuk, Dr.Sc.
Department of Environmental Chemistry and Technology,
Faculty of Environment, Jan Evangelista Purkyně University
in Ústí nad Labem, the Czech Republic
International Conference Contaminated Sites 2022
Senec, Slovakia
October 12-14, 2022
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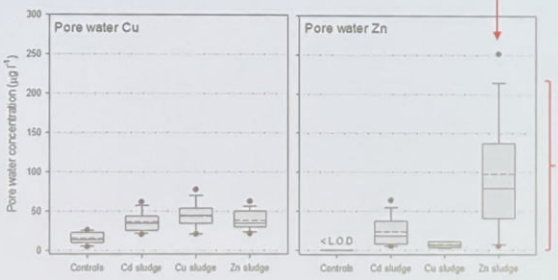
Soil characteristics

		Zinc (mg kg^{-1})	
Acid digestion	Years after sludge applied	Control Soil	Sludge Soil
Soil	1	81 (3.7)	507 (18)
	7	81 (3.4)	474 (36)
	14	88.7 (6.5)	501 (12)
Grass	1	30 (2.6)	135 (1.5)
	7	25 (3)	228 (80)
	14	34 (3.4)	290 (64)




Bioremediation
• This is the method for clean up of our environ- ment by degradation of toxic pollutants into non-toxic or less-toxic substances by some living organisms.
• Various bacterial species such as Bacillus subtilis, B. amyloliquefaciens, B. pasteurii, B. cereus, B. pumilus, B. mycoides and B. sphaericus , B. pumilus, B. pasteurii, B. mycoides, B. sphaericus, Pseudomonas. polymyxa, P. azotofixans, p. putida etc.
• Some fungal species like Pleurotus, Trichoderma, Phanerochaete etc. are also help in bioremediation
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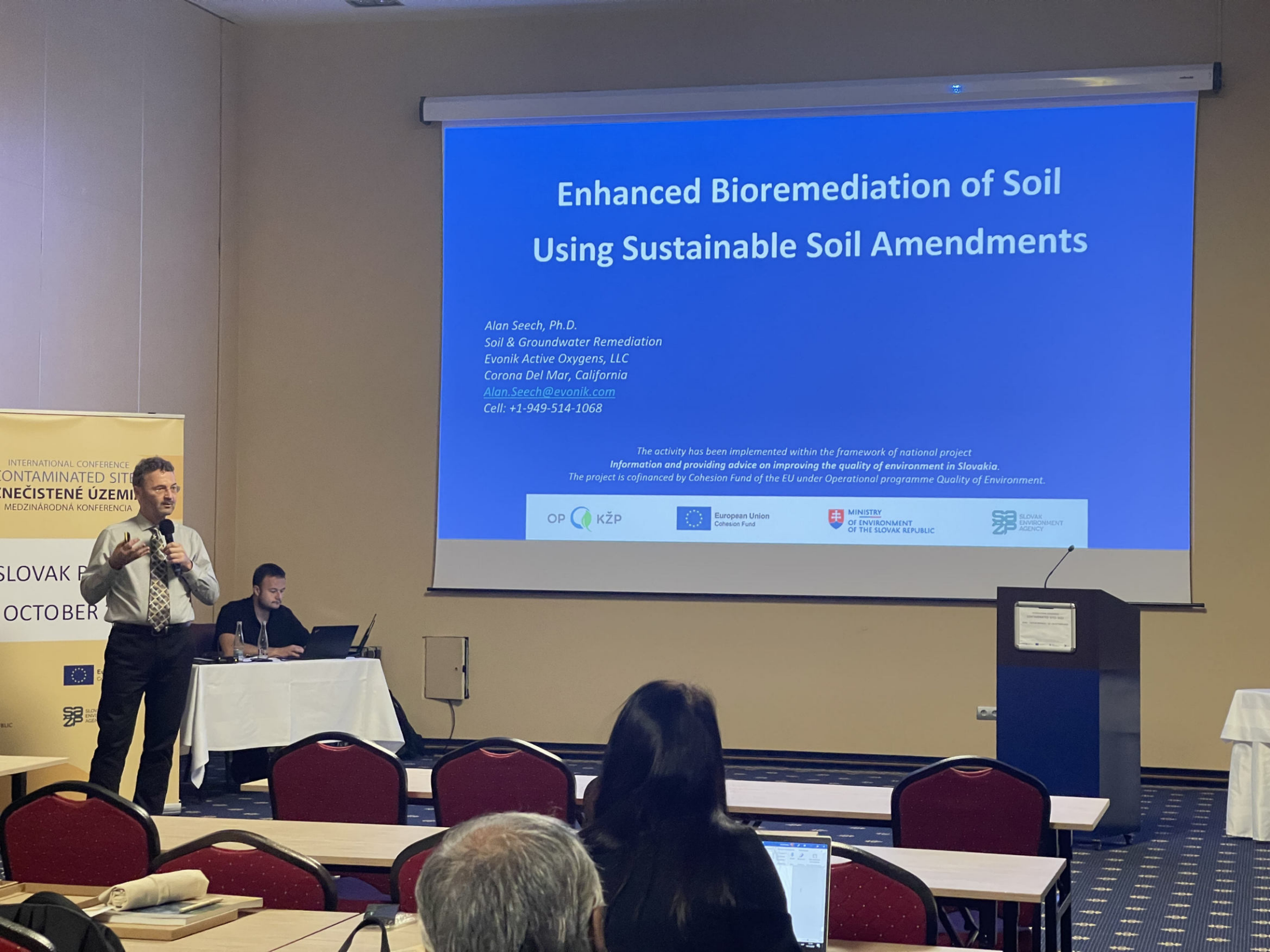
SAN QUINTÍN Minesite
Totally Degraded Soil
TDMG: Mine Gangues
TDHT: Heap of Tailings
Partially Degraded Soil
PDAD: Acid Drainage
PDLL: Low-Level
PDCS: Compacted Soil
PDME: Marginal Edges


Enhanced Bioremediation of Soil
Using Sustainable Soil Amendments
Alan Seech, Ph.D.
Soil & Groundwater Remediation
Evonik Active Oxygens, LLC
Corona Del Mar, California
Alan.Seech@evonik.com
Cell: +1-949-514-1068
The activity has been implemented within the framework of national project
Information and providing advice on improving the quality of environment in Slovakia.
The project is cofinanced by Cohesion Fund of the EU under Operational programme Quality of Environment.
OP KŽP
European Union
Cohesion Fund
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OF ENVIRONMENT
OF THE SLOVAK REPUBLIC
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INTERNATIONAL CONFERENCE
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