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Jarðvegsmengun

- Áskoranir á Íslandi -

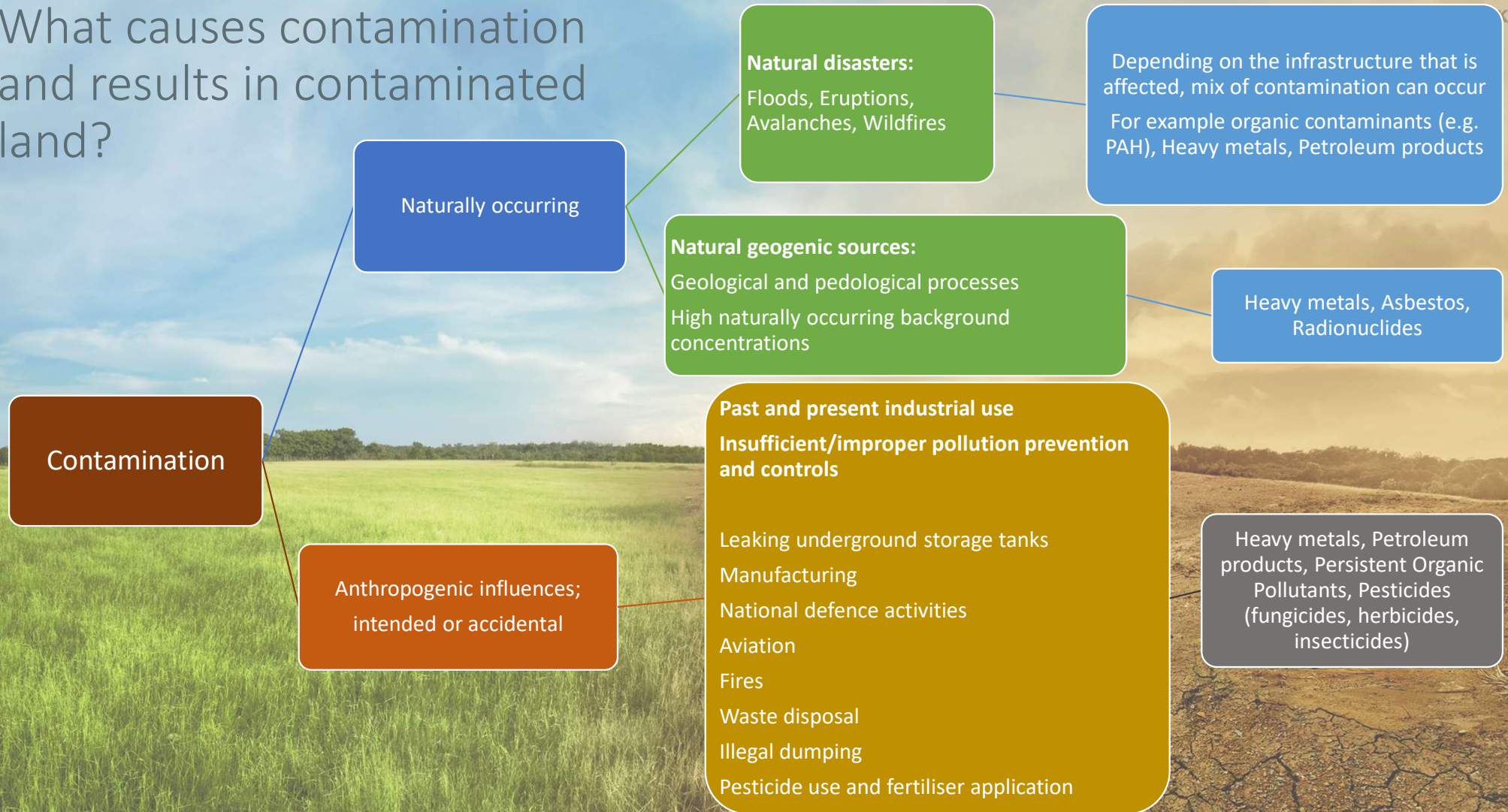


Contaminated Land – presentation overview

- What causes contamination and results in contaminated land?
- Iceland's perspective, current status and where we are heading
- Vapour intrusion remediation case study in Iceland
- FUMÍS –Professional Association on Contaminated Land in Iceland



What causes contamination and results in contaminated land?



Contaminated Land in Iceland – Main challenges



Lack of statutory requirements for professional work processes
Lack of enforcement for regulations that are in place



Availability of Icelandic guideline values

Some background values higher than maximum guideline values for certain land use (e.g., vanadium and nickel)



Available equipment & facilities

For fieldwork
For laboratory analyses
No soil remediation/management facilities



Travel distances, both within Iceland and to other countries

Certified laboratories
Remote field sites
Access to remediation options



Inclement weather

Limited time for field work

Iceland – laws, regulations & standards

- Regulation on contaminated soil no. 1400/2020
 - Includes maximum values for certain contaminants based on land use
- Building regulation no. 112/2012
 - Article 15.1.2 Contaminated construction site
- Icelandic Standards (IST) - the national standards body of Iceland
 - ISO 18400 Soil quality - Sampling
 - ÍST EN ISO 21365:2020 Soil quality - Conceptual site models for potentially contaminated sites



United Nations
Development Goals



Iceland – other guidance and recent developments

- The Environment Agency of Iceland

Operates under the direction of the Ministry for the Environment and Natural Resources. Its role is to promote the protection as well as sustainable use of Iceland's natural resources, as well as public welfare by helping to ensure a healthy environment, and safe consumer goods.

- Reference limits for contaminated soil – Guidelines of the Environment Agency (2023)
- Reuse of soil waste in fills – Guidelines of the Environment Agency (2024)
- Database for contaminated land [Umhverfisstofnun | Mengaður jarðvegur \(ust.is\)](https://ust.is/)





Soil Remediation in Iceland

❖ Soil is a vital non-renewable resource

- Common clean up methods for contaminated soil in Iceland have been “dig and dump”
 - Contaminated soil taken to landfill, often long distances away from its origin
 - Followed by backfilling with clean soil
- Only moves the problem and does not solve it
- Sustainable Remediation – Preferred Methods

Vapour Intrusion Case study - N1 Petrol Station in Hofsós, Iceland

- Petroleum odour
 - First complaints of odour from drains was received by N1 during autumn 2019
 - Odour also detected indoors in two buildings near the petrol bowers



Soil sampling & Remediation Action Plan

June 2021 :

- Soil sampling from test pits to delineate the contamination

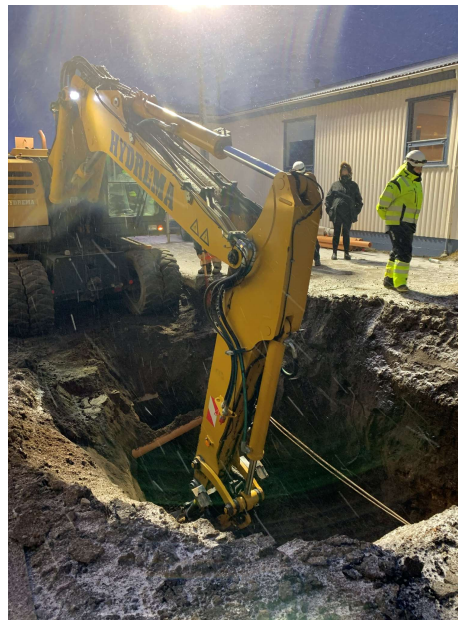
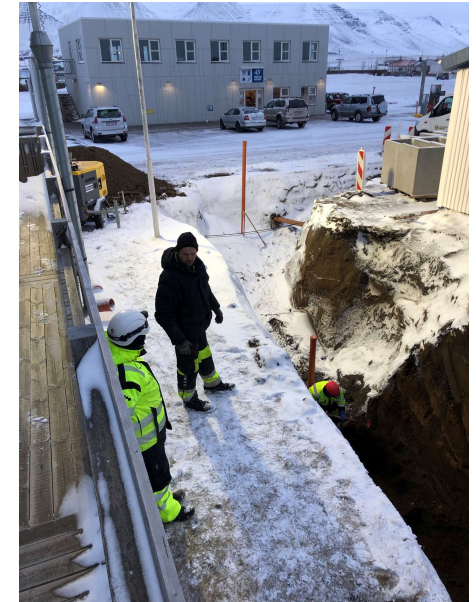
January 2022:

- [Remediation](#)
 - Vapour intrusion mitigation methods
 - Sub-slab active vapour extraction
 - Ventilation in buildings
 - Sealing preferential pathways through floor slabs
 - Clean-up
 - Soil vapour extraction & biodegradation
 - Removal of contaminated soil
 - More detailed investigation
- July 2022, ongoing:
 - VOC monitoring



Main challenges

- Authorities' initial lack of knowledge and understanding
 - Local health authorities
 - Environment Agency
- Community engagement
- Distance from Reykjavík
- Available equipment in Iceland
- Lack of suitable waste facilities for contaminated soil
- Unfamiliarity and inexperience with different remediation methods
 - Difficulty accepting that “dig & dump” was not the most feasible option



Main challenges

- Daylight hours very short – approx. 4.5 h



Main challenges

- Icelandic winter weather
 - Frequent snow blizzards!
 - Freeze-thaw



Fagfélag um mengun á Íslandi

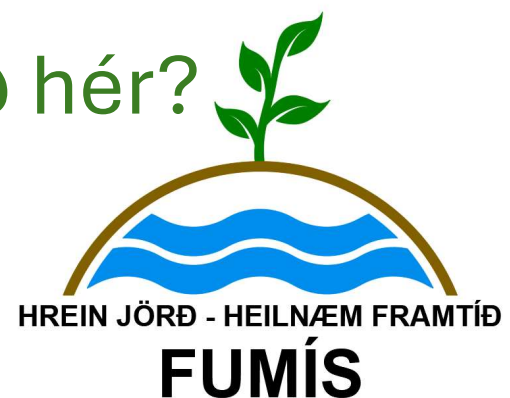
Stofnað 12. febrúar 2024

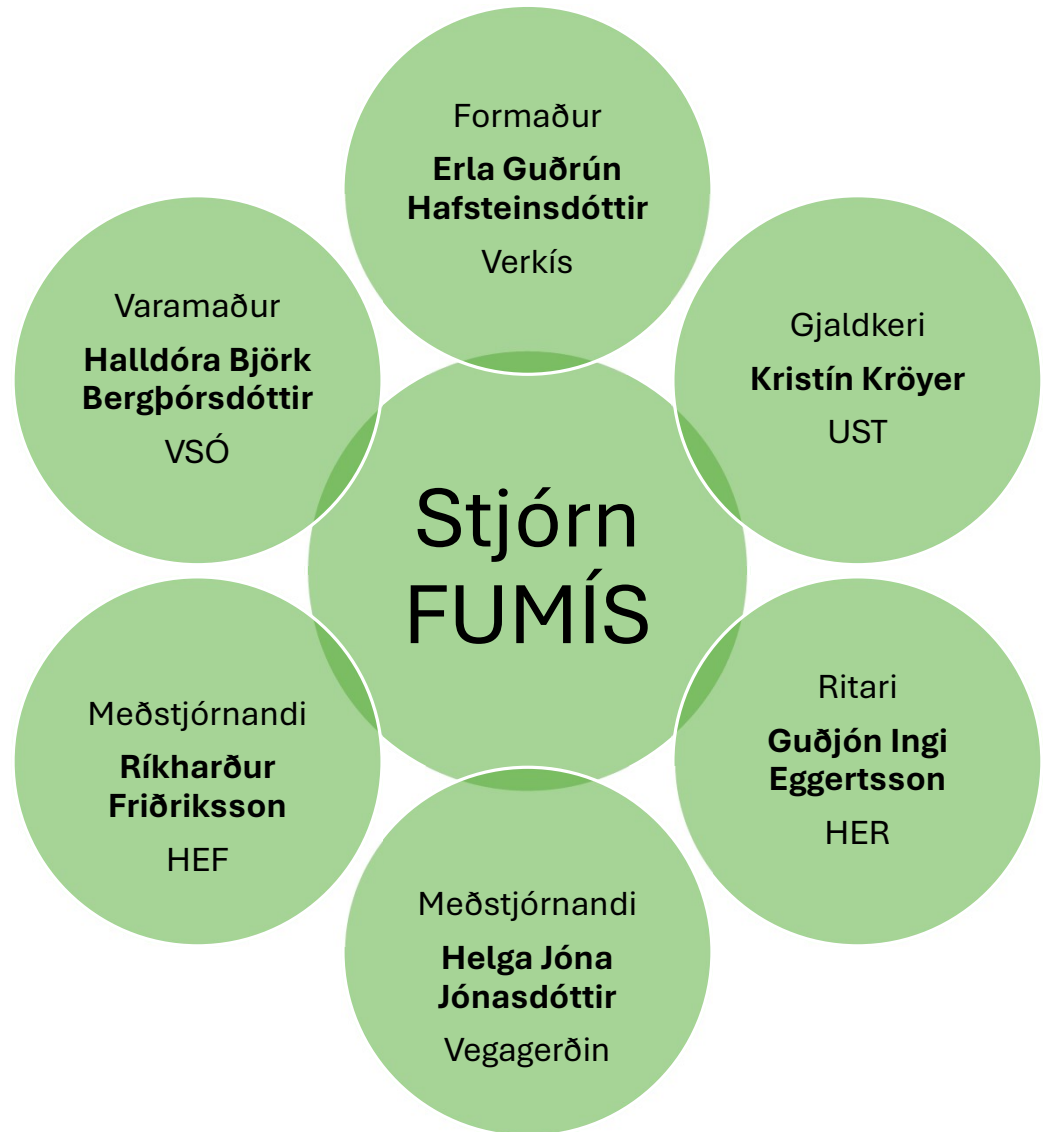
Vefsíða FUMÍS

FUMÍS á Facebook

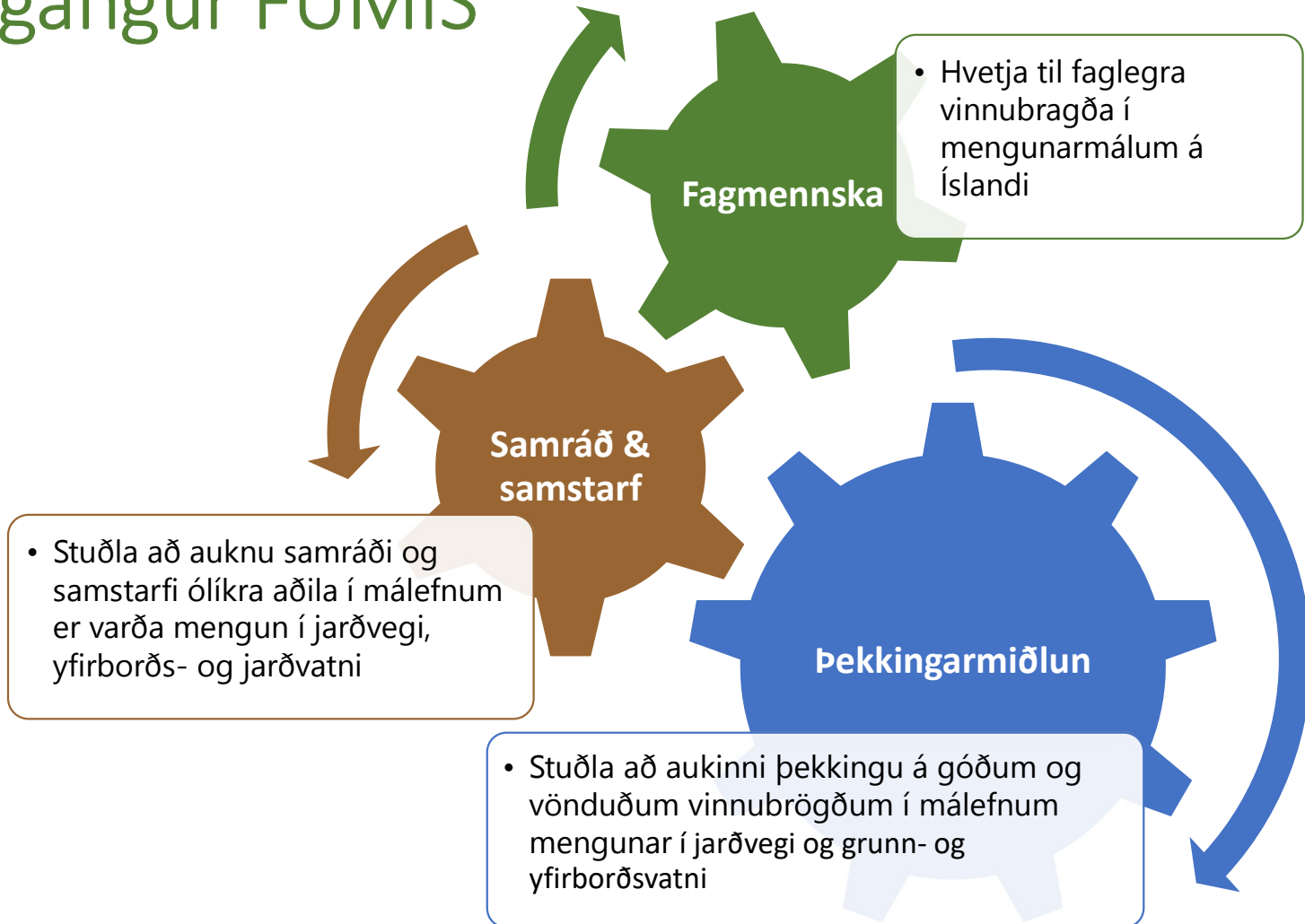
Hver erum við?

Af hverju erum við hér?





Tilgangur FUMÍS



Thank you!



Integrity
Ambition
Initiative