Innovative Technologies for Complex Resources
Background

Vision

The institute will become the national (European) centre for researching and developing technologies designed to assure and safeguard the steady supply of mineral and metalliferous raw materials for the German (and European) economy.

Goals

- Development of new technologies
- Contribution to sustainability
- Close interaction with industry to strengthen resource expertise
- Training of a new generation of resource industry professionals
Research Program

- Focus on complex primary and secondary mineral resources
- Specific focus on high tech metals (REE, In, Ge, Ga)
- Interdisciplinary research along the value-added chain
- Complementary research to TU Bergakademie Freiberg and Helmholtz Center Dresden-Rossendorf
- Attractive topics for regional, national, and international partners from research and industry
Industry Contacts

Geological Exploration

Mining/Extraction

Processing

Metallurgy

Recycling/Recovery
Flagship Project 1: Domestic Geopotential

Approach

- Aerogeophysics of 100 km² area
- Helicopter-based geophysics (TEM, gravimetry, magnetics)
- High-resolution 3D modeling of the geology up to 500 m depth
- Delineation of exploration targets
- Partners: BGR, TU Bergakademie Freiberg, LFULG, SAXONIA
Flagship Project 2: Urban Mining of Mine Dumps

1: LULG - Die Zinnerzlagerstätte Altenberg/Osterzgebirge (1. Aufl., 2001)
* - Estimation on content of mica

<table>
<thead>
<tr>
<th>Data Tiefenbachhalde Altenberg¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of work</td>
</tr>
<tr>
<td>Beginning of operation</td>
</tr>
<tr>
<td>Final shutdown</td>
</tr>
<tr>
<td>Origin of material</td>
</tr>
<tr>
<td>Type of material</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Content in Tm³</td>
</tr>
<tr>
<td>Chemical composition</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Mineralogy</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Value based on current prices</td>
</tr>
</tbody>
</table>
Flagship Project 3: Marine Resources

- Poly-metallic manganese nodules
- Poly-metallic manganese crusts
- Massive-sulfide lenses

→ **Cross-sectional topic of the Helmholtz Association**
Opportunities for Collaboration

For research institutions and universities

- Large research projects (funded by public research grants or by industry)
- Exchange of academic staff and students (funded by Helmholtz Ass., DAAD)
- Use of unique infrastructure (funded by HIF, Helmholtz Ass., DAAD)

For industry

- Research projects of fundamental character, capitalizing on unique expertise and infrastructure
- Development of innovative technologies
- Strategic technology advice
Thank you very much for your attention!

It doesn’t matter how many ‘resources’ you have.

If you don’t know how to use them, it will never be enough.

Prof. Dr. Jens Gutzmer
e-mail: j.gutzmer@hzdr.de
phone: +49 351 260-4400