

Wismut GmbH: State-owned expertise for innovative and sustainable post-closure solutions

Frank Winde, Engineering & Radiation Protection: Cross-cutting projects

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Deutsch-Peruanische
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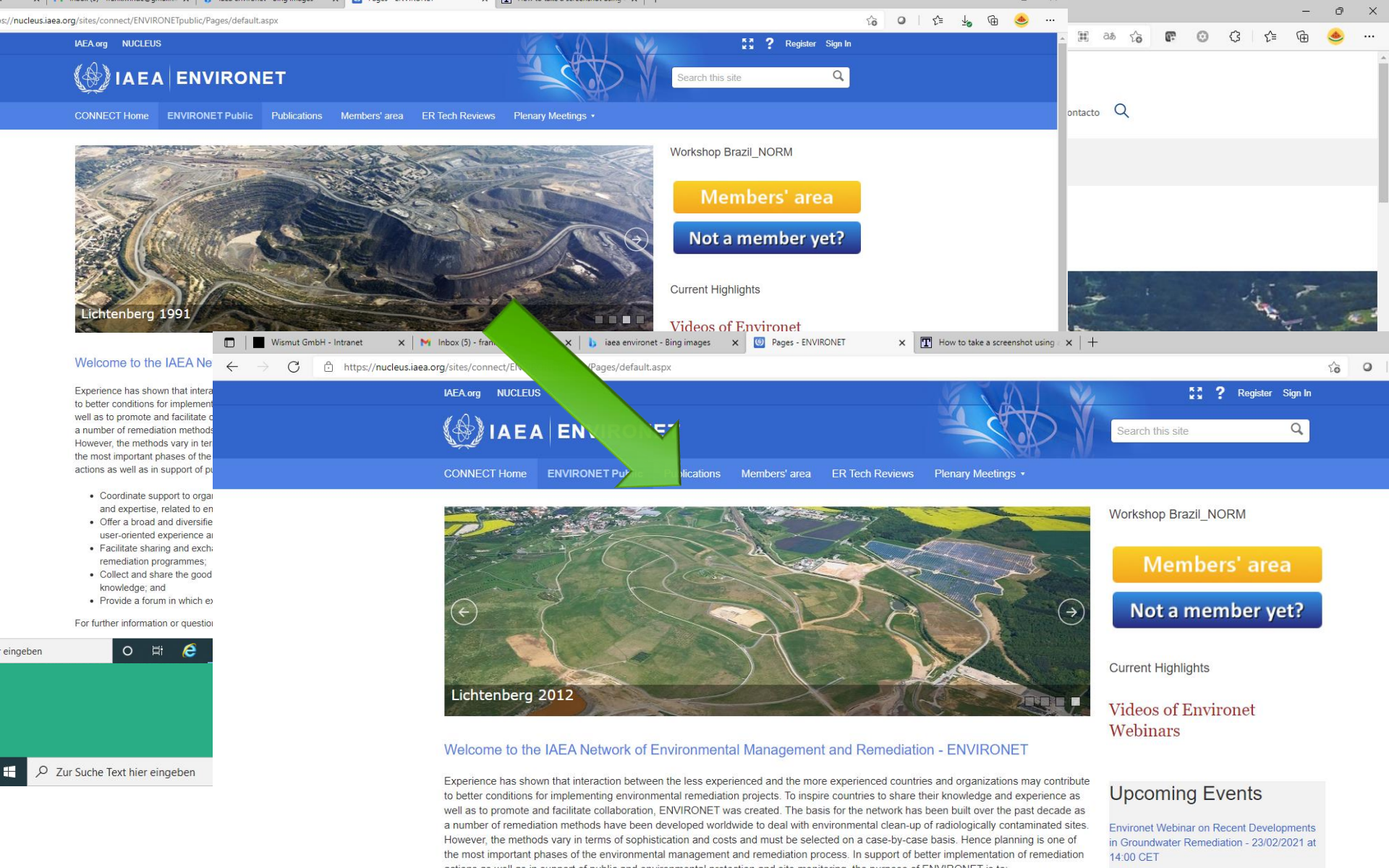


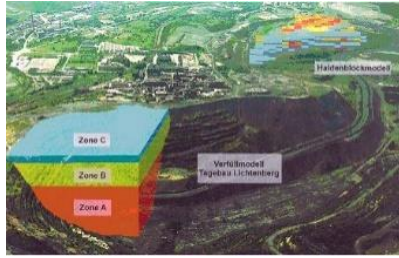
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Outline

- (1) Where Wismut comes from
- (2) Key competencies
- (3) Innovative solutions: an example
- (4) Take-home message



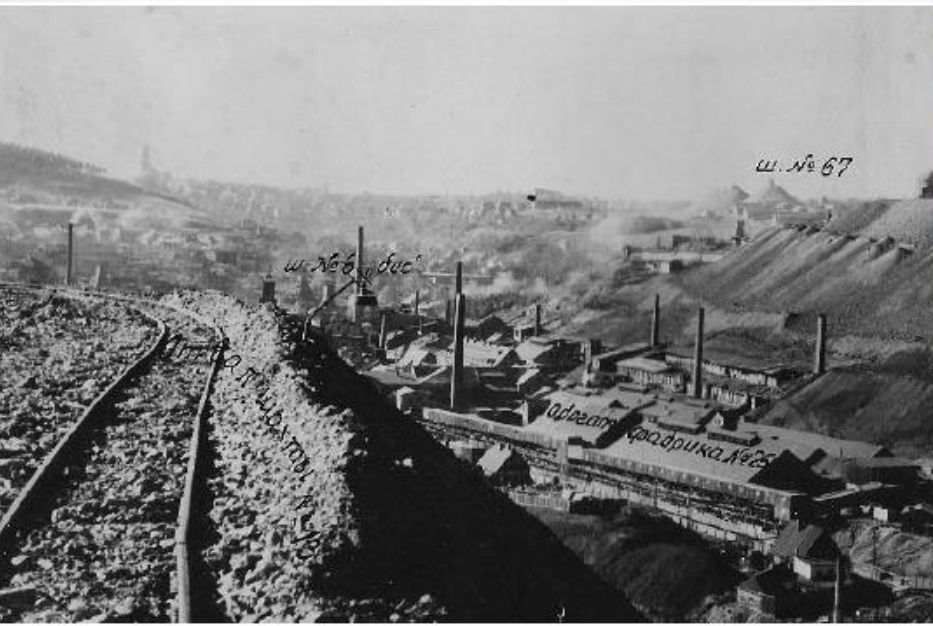


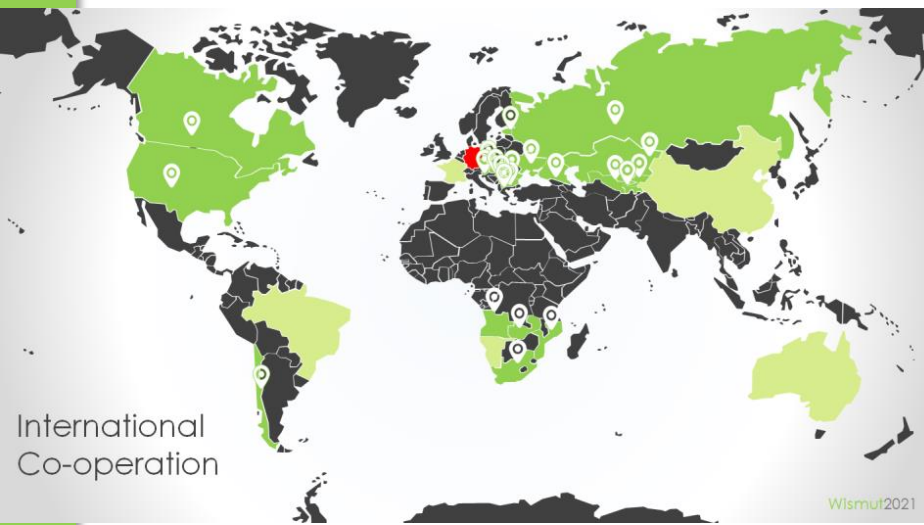
(1) Where Wismut comes from...

- **SDAG Wismut (1946-91): World's single largest U-producer during Cold War**
 - >200,000t of U → **1bn t of NORM waste** created in the process
 - affected Europe's most **densely populated** mountainous region
 - significant **environmental degradation** (water, air and soil pollution)
- **Wismut GmbH (since 1991): Dedicated remediation company**
 - among the most complex decommissioning & remediation project
 - 160 Mm³ tailings, >300 Mm³ waste rock, 100+ shafts, 240-m-deep open pit; **€ 7bn**
 - 2019: inclusion of Wismut sites into **UNESCO World Heritage** area
 - **completion** of physical remediation work envisaged for **2028**
 - Remaining **long-term tasks** (30+ years)...



Oberschlema: before and after

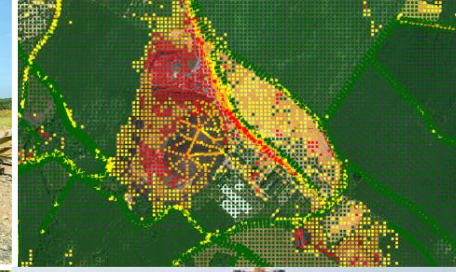




Source: *Best practice in chemical stability management*, **Fundación Chile**, 2015

■ **Wismut today: A globally recognised brand**

- Decades of '***moving mountains***' and turning '***Valleys of death***' into 'blossoming landscapes' (BuGa 2007) made Wismut a leader in remediating complex mine legacy sites
- Increasing **international footprint**: projects in **30 countries**
- **Unique combination**: **30 years** experience in **large-scale remediation** + **45 years** of active mining
- Created several **international benchmark and reference projects**
- Vitally important for **building public trust** and acceptance of future mining projects (**SLO**)



(2) Key competencies

- ✓ **Legislation-compliant** handling of large volumes of **NORM**-residues
- ✓ Developing sustainable site-specific **remediation concepts**
- ✓ Environmental **monitoring** (water, air, soil, biota)
- ✓ Depth-controlled groundwater **sampling of deep aquifers**
- ✓ Measuring, modelling and managing of **radon** fluxes
- ✓ **Radiological exposure** models and **risk assessments**



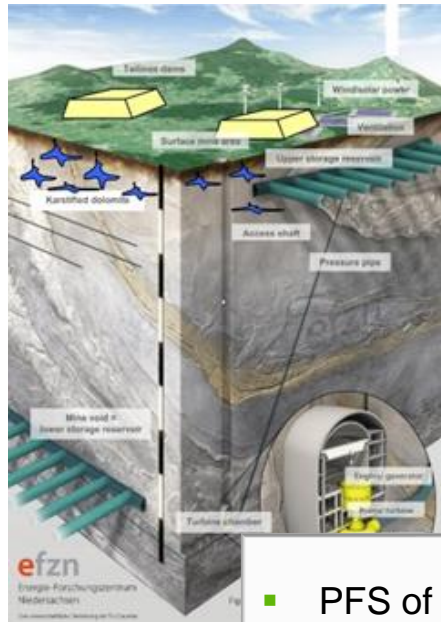


(2) Key competencies (cont'd)

- ✓ GIS-based **data management** and archiving
- ✓ **Certified laboratories** (geochemical, radiological, soil mechanics)
- ✓ **Water management** and **treatment** incl. safe disposal of associated residues
- ✓ **Capacity building** (radiological protection, mine rescue service ...)
- ✓ **Project management** and **administrative permitting**
- ✓ **innovative**, affordable and sustainable **post-closure solutions**



(3) Innovative concepts: an example



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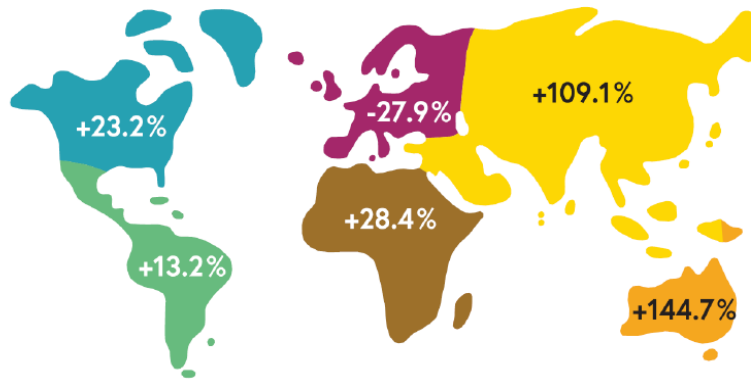
Thyssenkrupp, Wismut to study potential to repurpose old South African gold mines for energy storage



- PFS of **UPHES** for **Sibanye-Stillwater Ltd.** together with **thyssenkrupp**
- In line with ESG: aids **decarbonisation** and **post-mining community development**
- averts **water pollution** and **perpetual pump-and-treat of AMD**
- Other projects: **resource extraction** from tailings/ mine water, **geothermal energy**...

Wismut as a sought-after partner of international organisations and regional science





Mining activities 2000 vs.2019 (World Mining data 2021)



(4) Take-home message

- 75 years of **hands-on experience** in industrial-scale mining **and** remediation
- Wismut envisages aiding **resource-extracting developing nations** to meet increasingly stringent **ESG**-criteria
- aims at establishing **mutually beneficial partnerships** with a wide variety of stakeholders also based on **non-commercial** arrangements

Thank you for your attention!

For more information please visit: www.wismut.de

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