Mining Energy Environment

Your cluster „Made in Germany“

Castilla y León – EU Cluster Matchmaking Event
9 - 10 April 2019
Santa Bárbara Foundation
C/ Aguilonjos s/n, 24310 La Ribera de Folgoso, León, Castilla y León
Who we are

- Non-profit triple helix organisation (industry-research-administration) located in the federal state of Saxony/Germany

- 160 members with business fields along the whole value chain of raw materials (spars and ores, aggregates, natural rock) and geothermal energy, nuclear depository

- GKZ bundles entrepreneurs, organisations, industry, research, administration to increase the impact of smart specialisation by: \textit{networking, lobbying, improving framework conditions, raising raw material awareness, knowledge exchange}

Member structure by 2018

- Geoconsulting / Exploration: 30%
- Mining / Extraction: 22%
- Processing: 17%
- Recycling: 10%
- Rehabilitation / Site development: 7%
- Geothermal Energy: 4%
- Ressourcenmanagement/Geotechniques: 8%
- R&D: 2%
Where we come from

Saxony...

• defines raw materials as an integral part of its policies (Innovation Strategy; Raw Materials Strategy) – the is a strong commitment to mining and metallurgy
• is a hub in raw materials research & development at federal and EU level
• owns a strategic potential of valuable raw materials for present and future applications and technology developments
• has a strong metallurgical background: operation of Sn, Ni, Co, Cu, Zn, Pb +by-product smelters
• Faced a number of industrial and socio-economic regional transitions

Raw Materials: a focal point at the interfaces of traditional and future sectors and KET

Source: Innovation Strategy of Saxony
Where we are located – the Freiberg Cluster

- Helmholtz-Society / Fraunhofer Institute – Top Federal Research Facilities
- TU Bergakademie Freiberg - Resource University since 1768 – Research mine
- Feinhütte Halsbrücke – one out of four remaining EU tin smelters
- Befesa – Zinc smelter
- Muldenhütten – Lead smelter
- Freiberg Compound Materials – world market leader in GaAs Wafer production
- Solar World – photovoltaic panels
- Technical Consultancies - innovative, applied research & consulting, mine developers
- German Combustion Research Centre - R&I on coal and gas, caverns, nuclear depository
- Saxon Supreme Mining Agency
- Saxon State Geological Survey
- Saxon Mining Archive

Source: GKZ, FCM Freiberg
Our resources

Source: SOBA
Saxony: innovation indicators and value chains

Analysis of external context (national/international)
Key innovation indicators

- Population with tertiary education
- Sales of new-to-market and new-to-firm products
- Employment in medium-high/high-tech manufacturing &...
- Non-technological (marketing or organisational)...
- Technological (product or process) innovators
- EPO patents applications
- Public-private co-publications: Saxony - Best performer
- Innovative SMEs collaborating with others
- SMEs innovating in-house
- Non-R&D innovation expenditures
- Business R&D expenditures
- Public R&D expenditures

Source: European Commission (2012), Regional Innovation Scoreboard

Source: Nickelhütte Aue, GKZ, ESF
How we are networked at regional, national and European level
Where we are partners
Development Co-operation
Capacity building, good governance

References

• Partner search in resource efficiency and management, Vietnam
• Institutional strengthening of the mining administration in Mozambique
• Training and education of young professionals from Mozambique in Saxony
• Curricula development for a mining academy in CEMAC, Africa

GKZ is an official partner of:

Source: GKZ,
Technical Co-operation
Expert pools in raw materials
R&D and consulting

Reference: Republic of Togo – Re-evaluation of a phosphate deposit

- Optimization of exploitation and preprocessing
- Economic evaluation and improvement of product flow, valorisation
- Viability report for privatisation of deposit

Source: GKZ,
Market Entry
Fact-finding Mission and Brokerage

Reference: Greenland market survey

- Environmental friendly and economic processing
- Surveying technologies
- Energy efficiency and infrastructural development
- Research and vocational training

Source: GKZ,
Know how transfer
Business delegation in Germany and Partnerships

Reference: China
- Resource management and energy supply
- Mine safety
- Energy efficiency
- Green tech and environment

Source: GKZ,
Technical cooperation: international dialogue

e.g. Republic of South Africa:

- Green Tech
- Small scale mining
- Energy efficiency
- Training

Source: GKZ,
Technical cooperation: good governance

e.g. CEMAC:

- Developing a curricula for setting up a mining academy
- Strengthening relationship to partner countries
- Door opener to industry

Source: GKZ, GTZ
Technical cooperation: Vocational training

Elaboration of Job description for fiscal and technical inspection in the fields of geology, mining, oil- and gas industry including professional qualification and necessities for hiring at governmental institutions in Mocambique

Source: BGR, wikipedia
Research and Innovation projects
Management, exploitation and dissemination

Reference: The FAME project:

Flexible And Mobile Economic Processing technologies of:

- low grade, complex Sn, W ores and by-products
- at European scale
- to secure domestic raw material supply
- and to engage mining entrepreneurship
What we are looking for:

Crafts:
• Digitisation, securing skilled labor force
• Qualification: BIM, language skills
• Attracting young people to join branch/sector

Natural stone:
• Promotion and policy making (awareness building of consumers, administration and Vergabe; sustain construction
• Branding / Labelling of EU products and services

Material Heritage and Regional Development
• Valorization of industrial and natural heritage
• Regional transition from mining to green tec

Raising raw material awareness and securing raw material supply by CSA

Source: GKZ
What we are looking for:

**Mining/Processing:**
Research partnerships on
- Valorization of low grade and complex ores (exploration, processing, metallurgy)
- Microbiological applications in mining and remediation
- Extraction of by-products in construction materials

**Job creation and education**
- Attracting young people to join branch/sector
- Raising awareness of branch/sector

**Circular economy:**
Research partnerships on
- Carrier metals
- Turing waste into resource
- Recycling

**Resource Efficiency**

Source: INEMET, TUBAF; GKZ, HZDR
Mining Energy Environment

Your cluster „Made in Germany“

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