



Developments and Trends in the German Mineral Resources Sector

German Day at PDAC 2014

The Mineral Resources Value Adding Chain –
More Efficiency with German Technology

Toronto, March 4th, 2014

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Head of Department Energy Resources, Mineral Resources

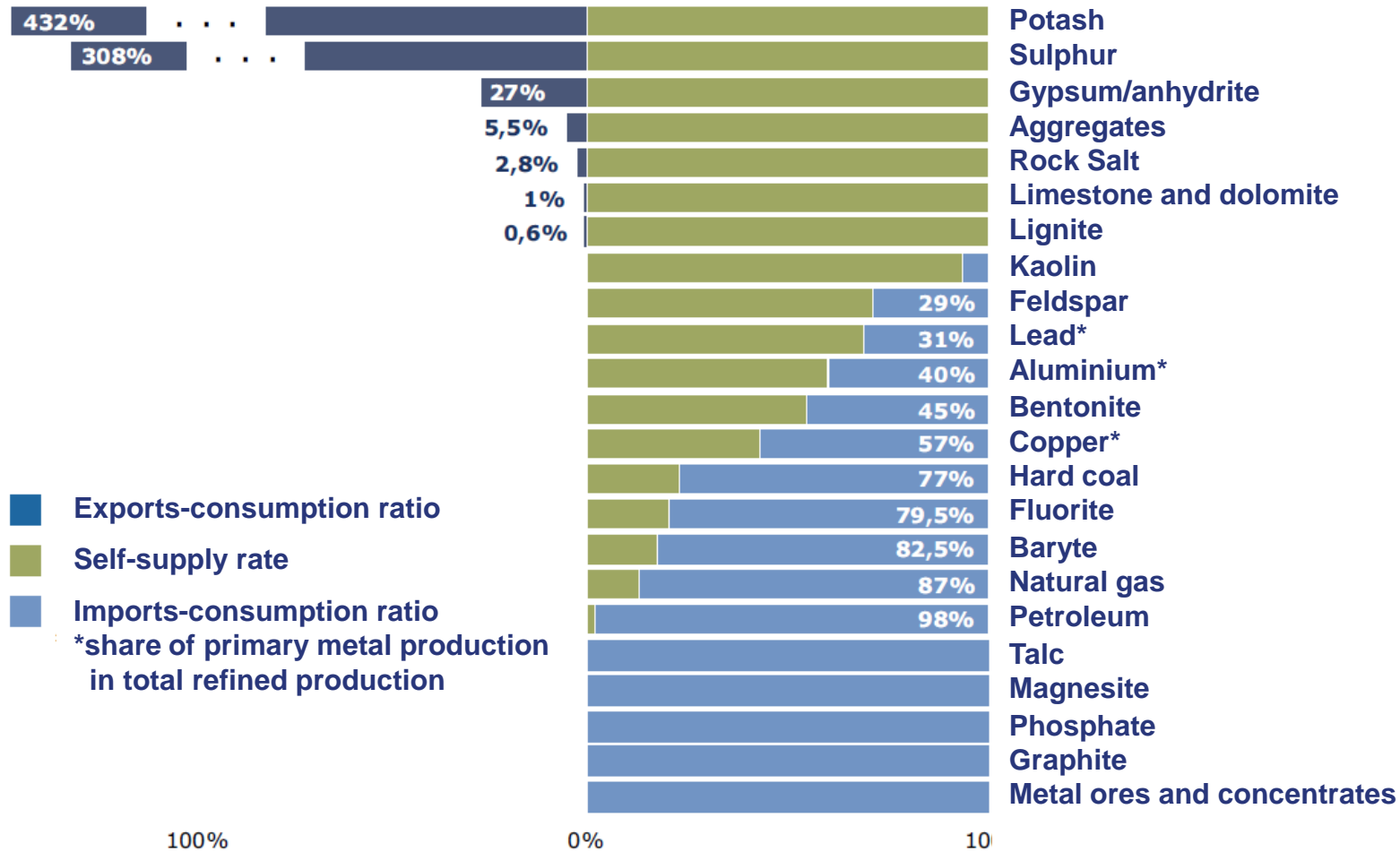
Federal Institute of Geosciences and Natural Resources (BGR), Germany



Bundesanstalt für
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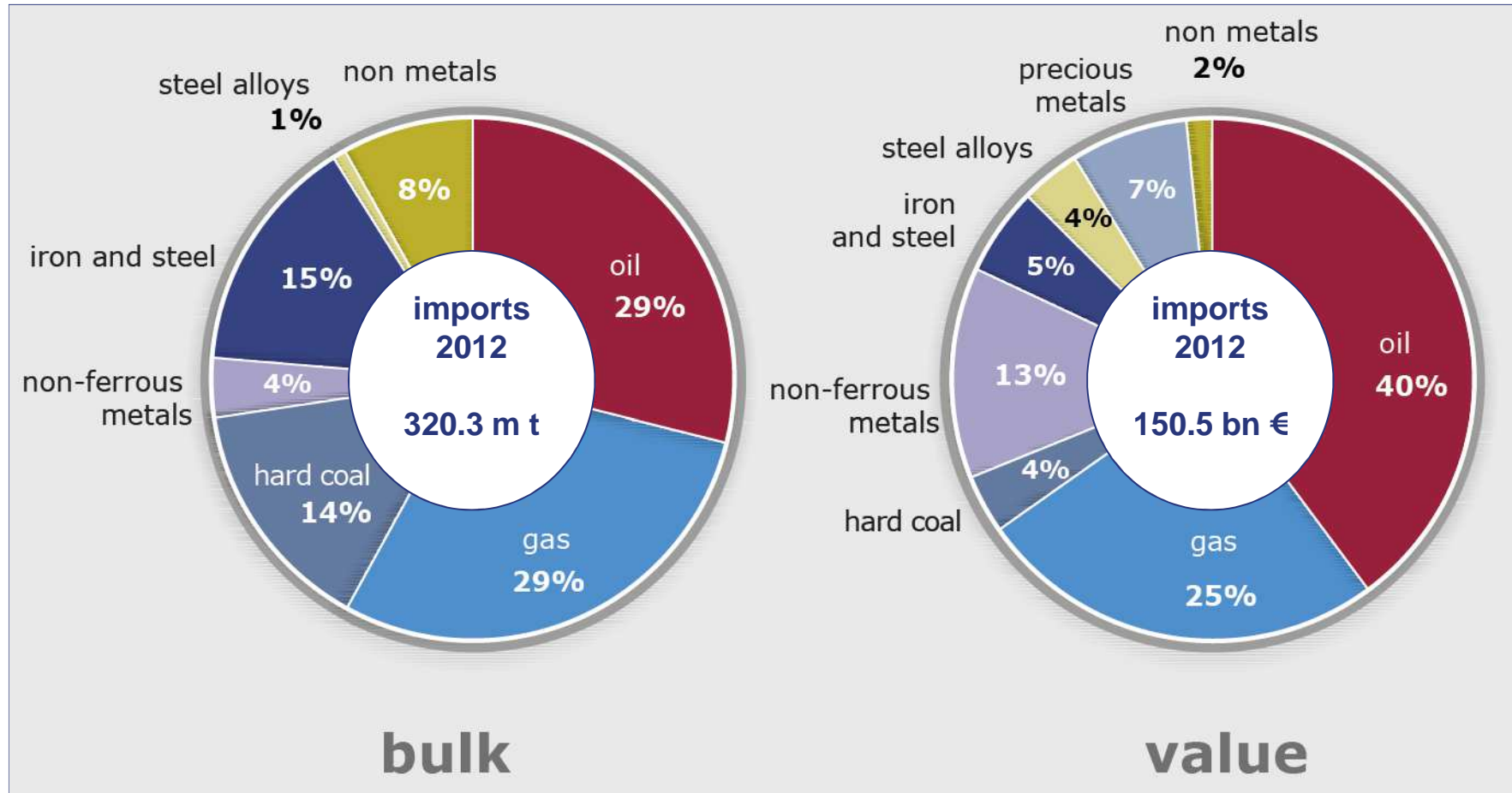
GEOZENTRUM HANNOVER

Germany's Exports and Imports of Raw Materials



(2010; BGR database)

German Raw Materials Imports in 2012



(BGR database)

Germany is Costumer Throughout the World 2011

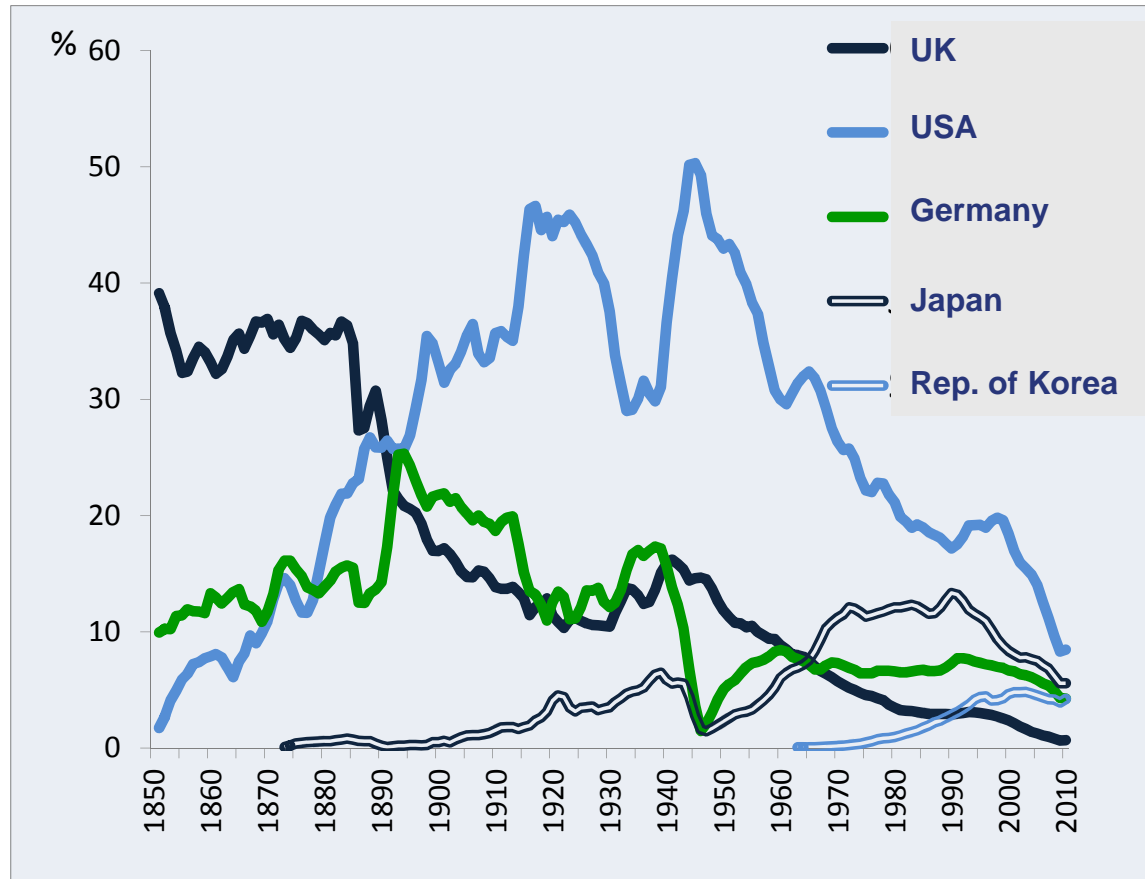
(BGR database)



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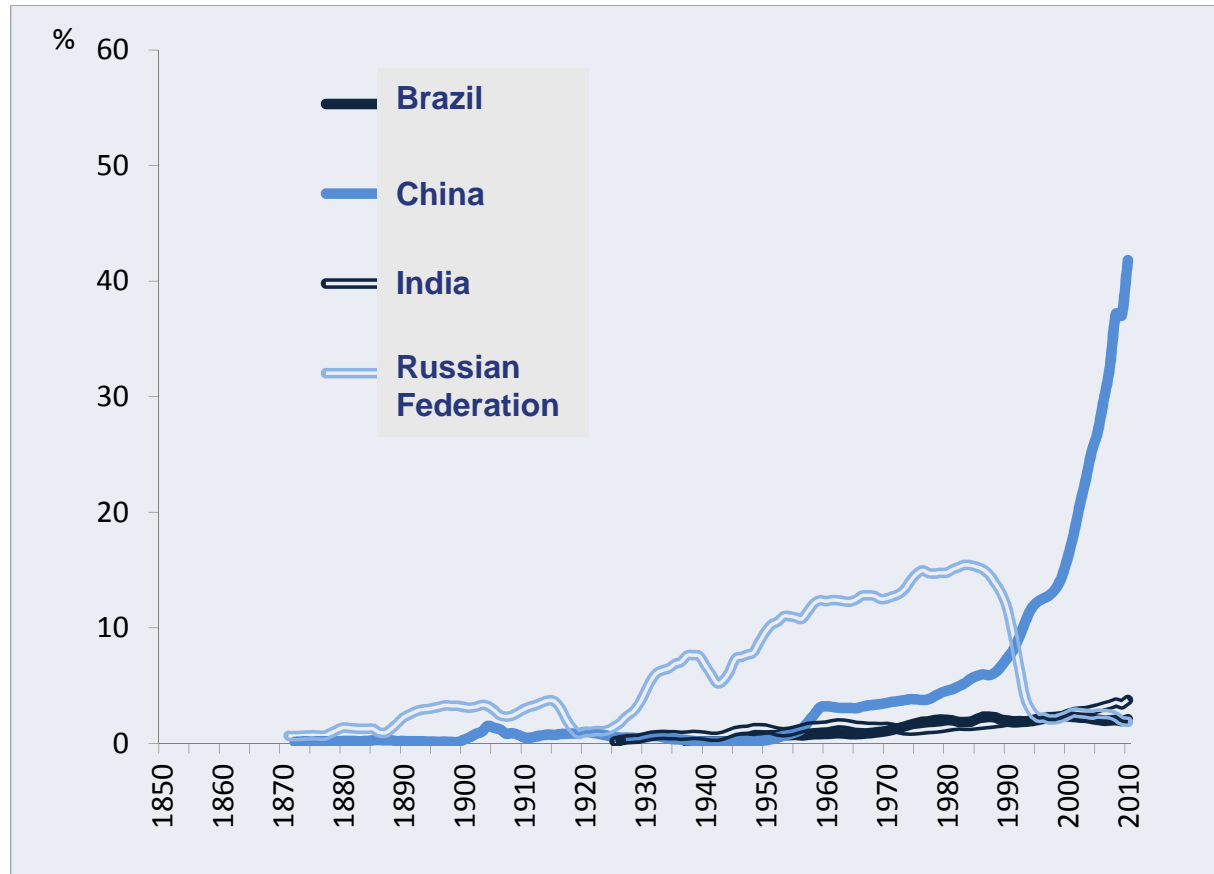
Share of Global Demand



Industrialised countries' average shares of total world demand for aluminium, steel, copper, zinc and tin

(University of Bonn, M. Stürmer, study commissioned and funded by DERA, 2012)

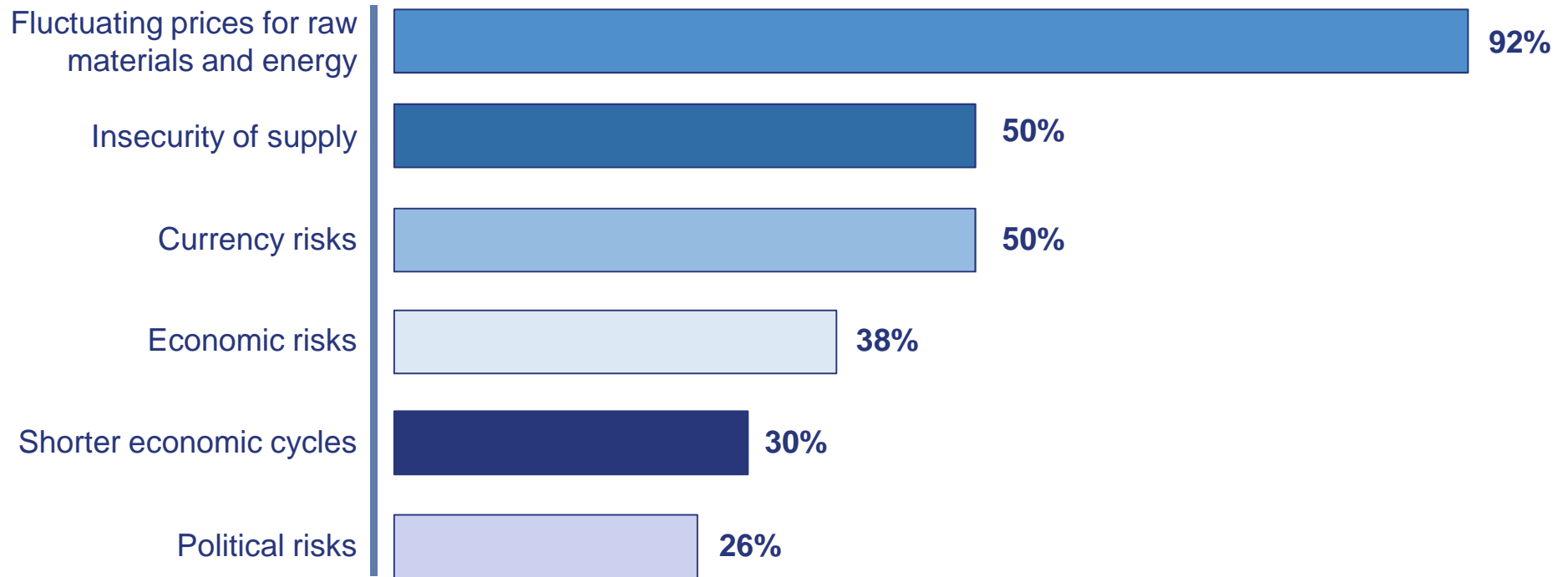
Share of Gobal Demand



BRIC states' average shares of total world demand for aluminium, steel, copper, zinc and tin

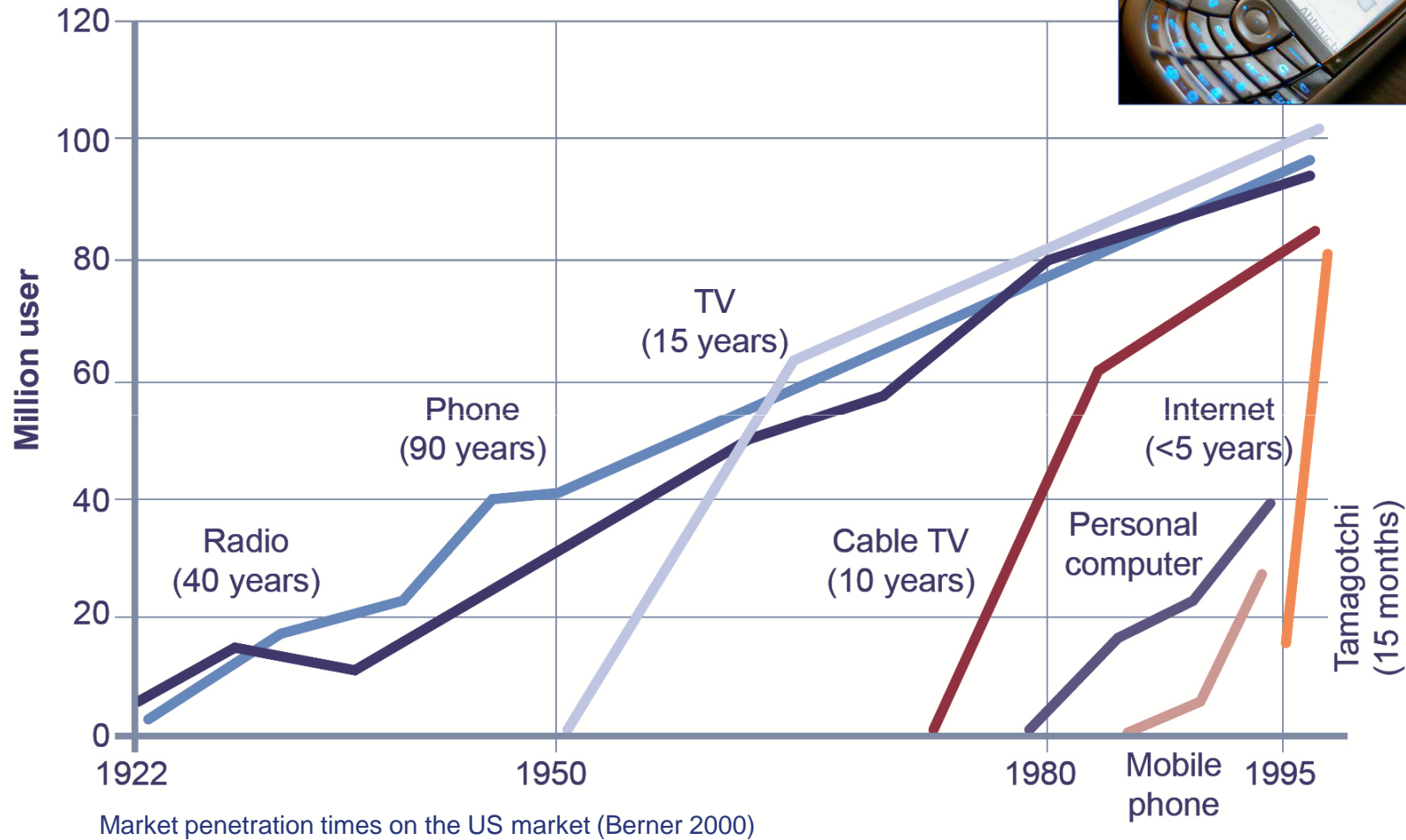
(University of Bonn, M. Stürmer, study commissioned and funded by DERA, 2012)

What Are the Problems for the German Companies?

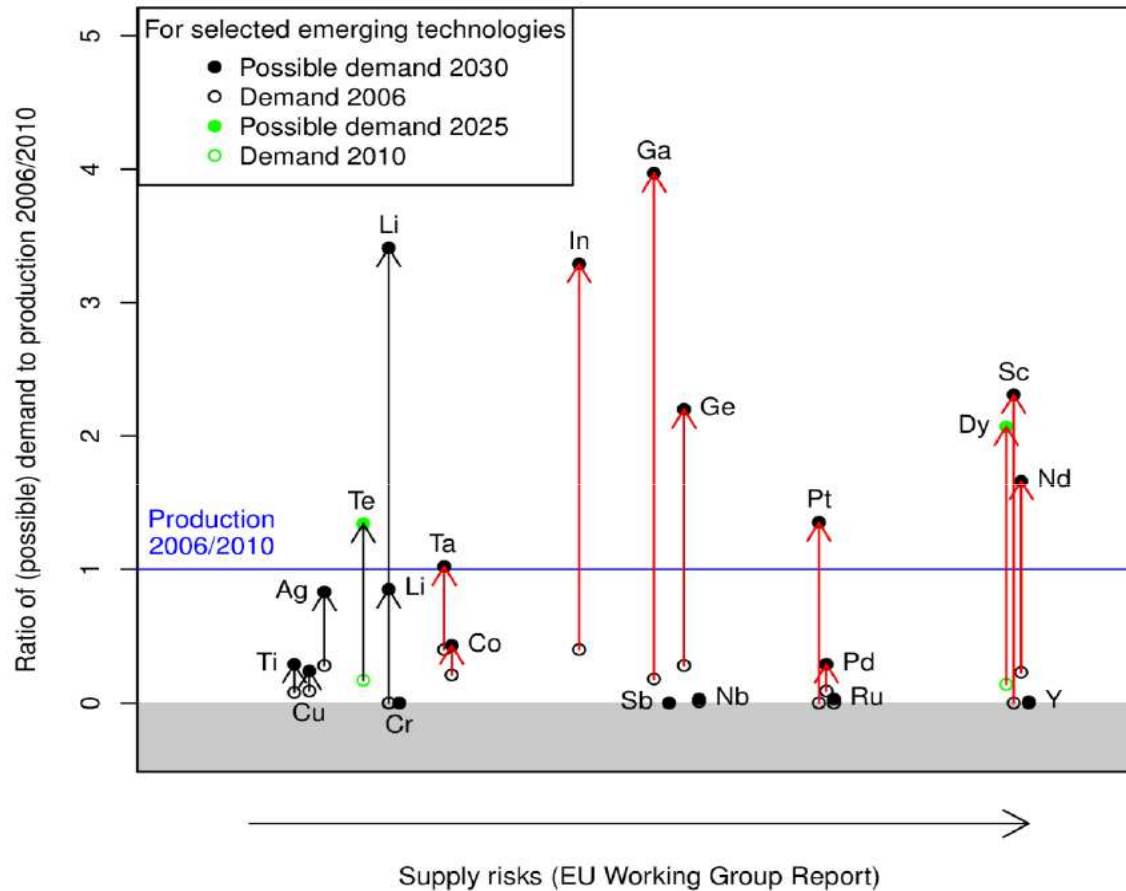


(poll by Inverto, 2012)

Market Penetration of New Products



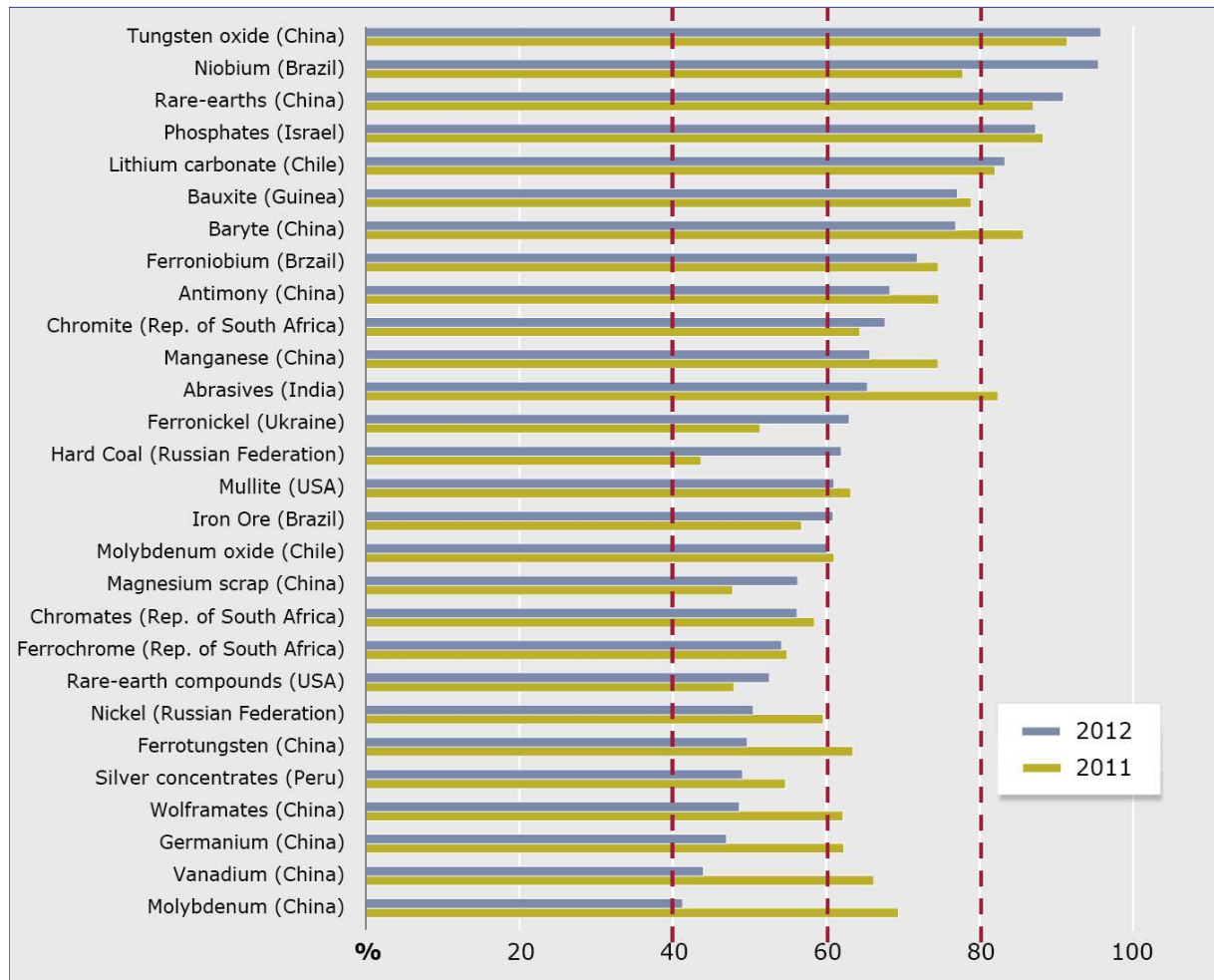
Future Demand - The Influence of Emerging Technologies: Breakthrough Difficult to Predict



Expected increases in demand for selected raw materials in correlation to the current supply and the corresponding supply risks

(Tercero Espinoza (2012): „The role of emerging technologies in a rapidly changing demand for mineral raw materials“, Polinares

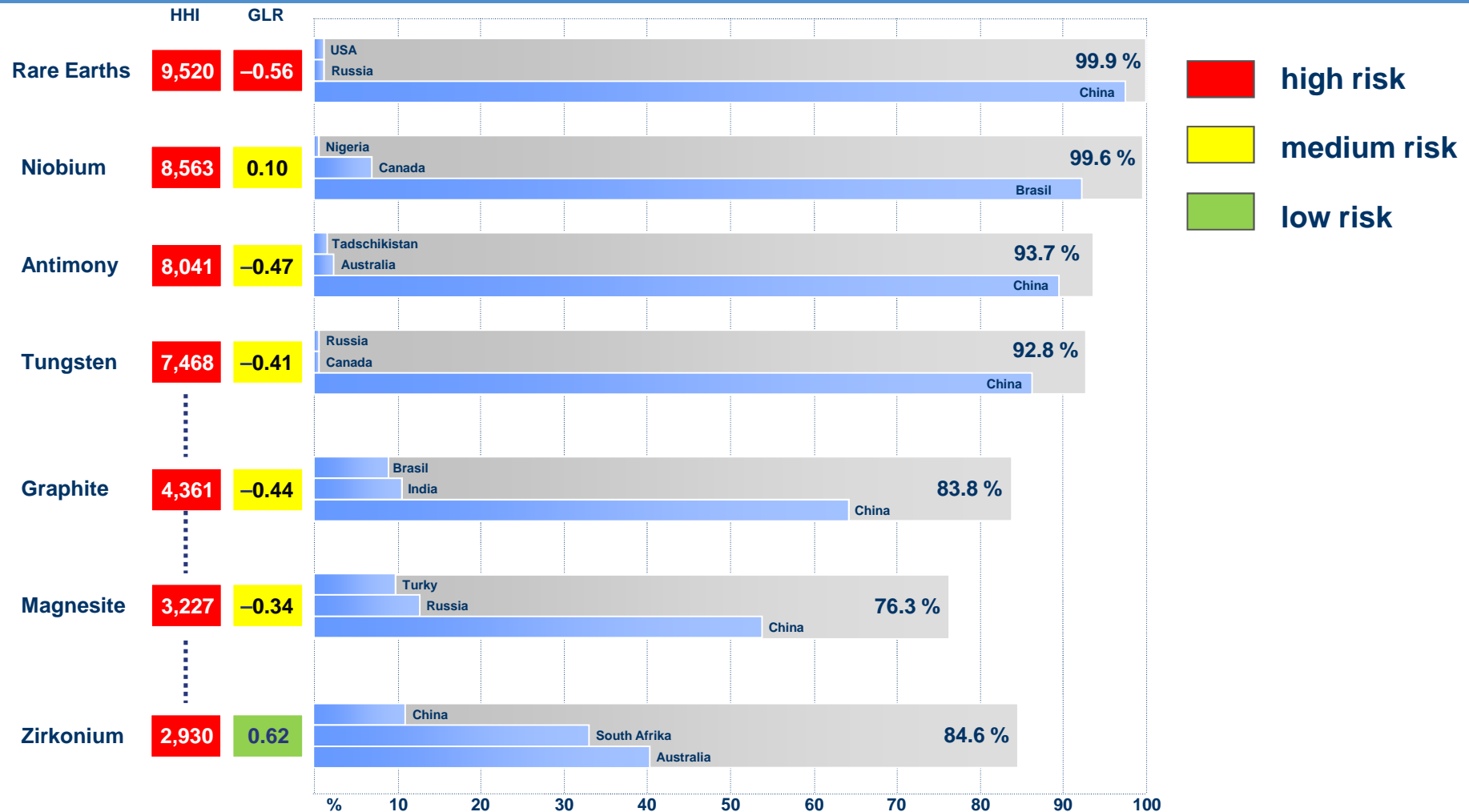
Germany's Dependence on Imports in 2012



(BGR database)

DERA-Raw Materials List 2012

– Country Concentration and Risk of Mining Production



Main Services of the German Mineral Resources Agency (DERA) at the BGR

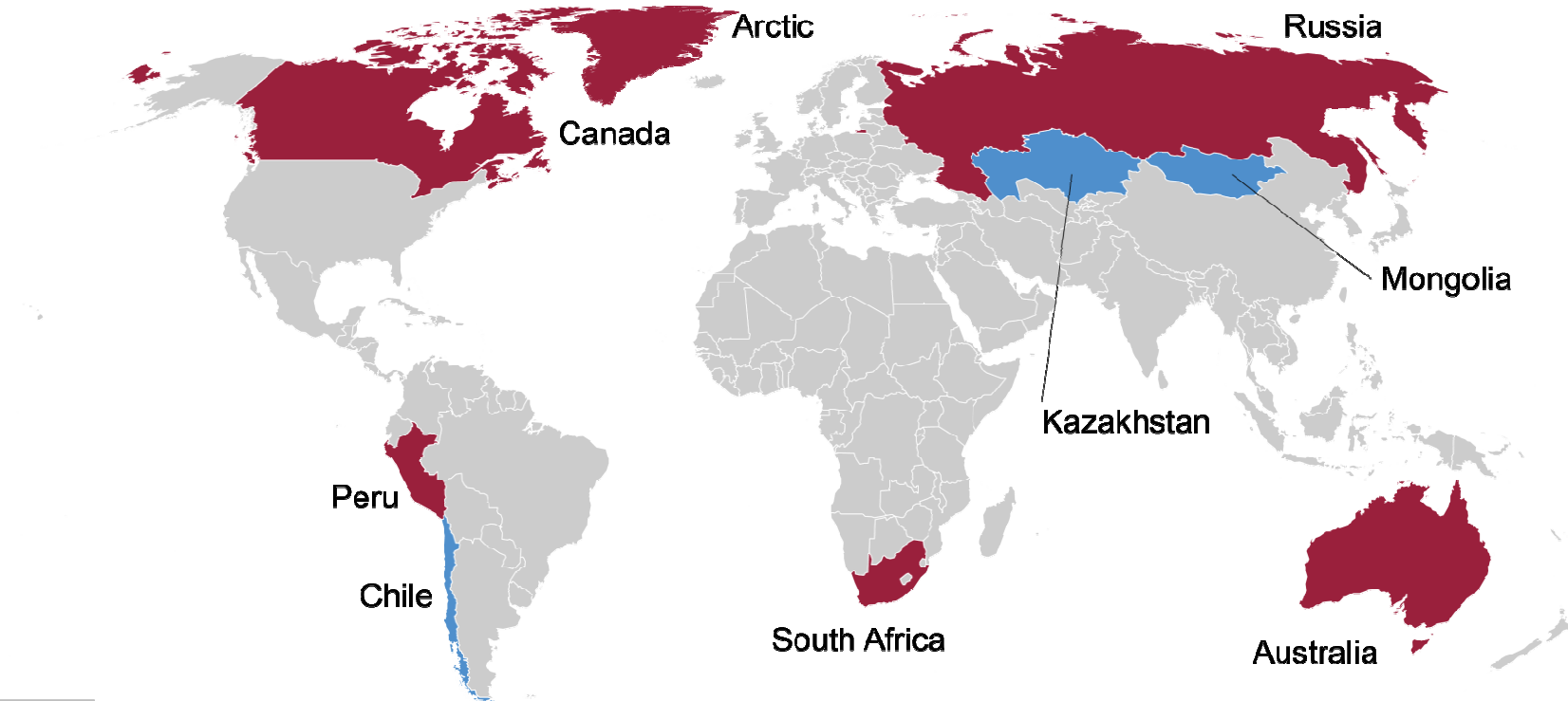


Federal Government Exploration Support Programme

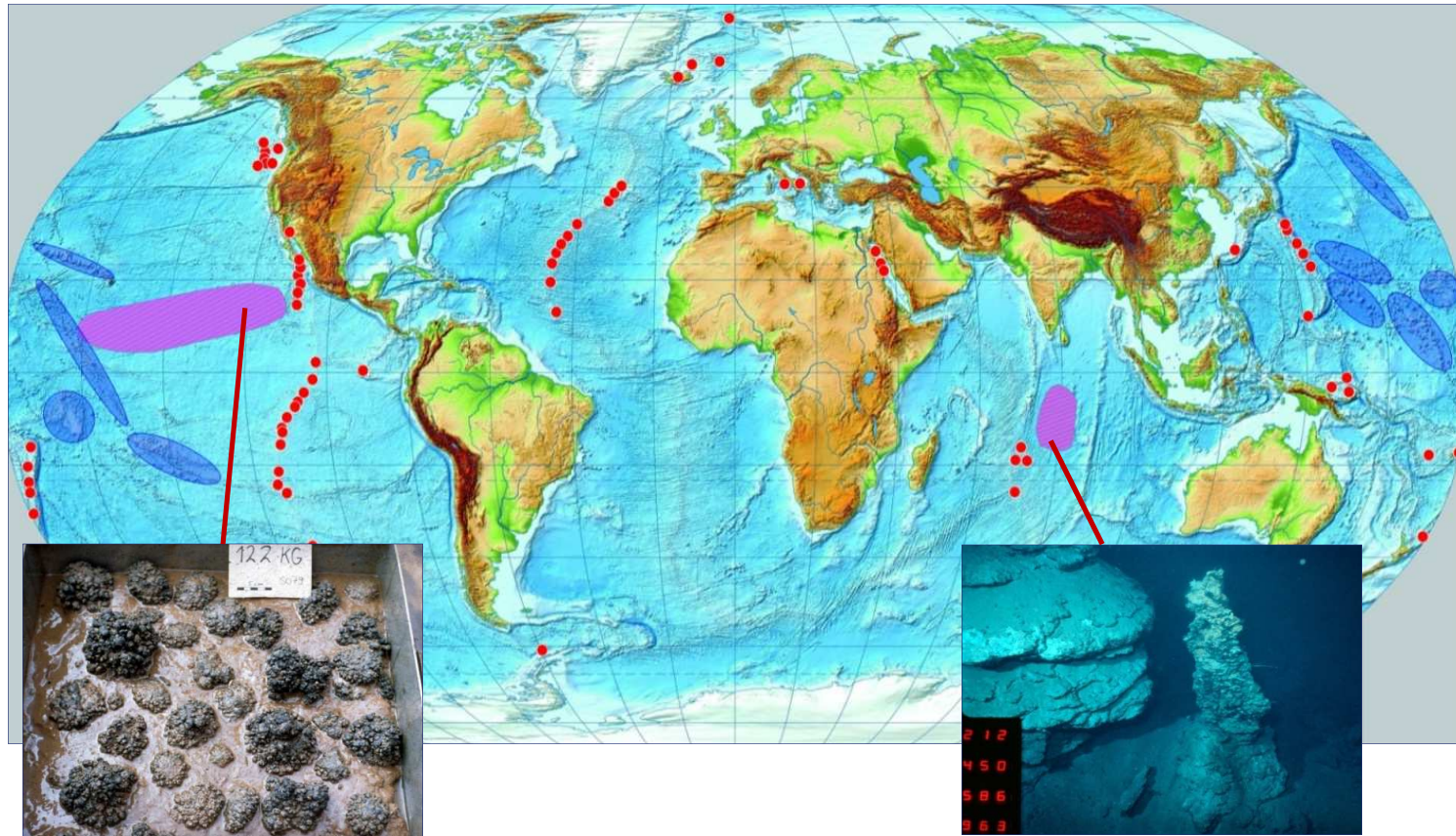
- BMWi-Program to foster exploration
- to improve the supply for Germany and the EU with critical non-energy mineral commodities:
Antimony, Beryllium, Cobalt, Fluorspar, Gallium, Germanium, Graphite, Indium, Magnesium, Niobium, PGMs (Platinum Group Metals), Rare Earths, Tantalum and Tungsten
- instrument to stimulate German enterprises, to invest in the national and international mining sector on a long-term basis (to reduce risks of project start-up)
- effective since: January 1st, 2013
- term: 3 years for the time being
- volume 27.5 m €
- disbursed as a conditionally repayable loan



Diversification of Supply – Bilateral Raw Materials Partnerships



BGR Long-term Activities



Deep-sea mining of mineral resources
– chances and challenges of a new field with economic potential

Conclusions



- Germany depends on the global raw materials markets; unrestricted, far and transparent markets are mandatory
- options: strengthen international cooperation (e.g. bilateral raw materials partnerships), explore domestic potential (e.g. exploration support programme)
- No shortages with respect to geological availability
- Shortages are caused by the market situation; country concentration, geostrategic risks
- High-tech metals are mostly by-products; their production depends on the production of major elements (like Pb, Zn, Cu)
- Need for new technologies for better by-product production (e.g. Ge from coal ash and slags)
- Development of unconventional deposits (marine mineral resources)
- Research/development of recycling technologies for high-tech metals