



Sustainability in the Mineral Raw Materials Sector

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Bundesanstalt für
Geowissenschaften
und Rohstoffe

GEOZENTRUM HANNOVER

German Industry – Back Bone and Motor of the German Economy

Sector	Balance (in € Bn)	1,000 Jobs
Automotive	407	828
Machinery	240	1025
Metal Industry	203	916
Chemical Industry	184	447
Food	171	580
Electronics	168	706
	<hr/> 1,373	<hr/> 4,502



Raw Materials Use

Autobody:
Iron, Manganese,
Titanium, Niobium,
Aluminium, Copper,
Nickel, Magnesium,
Zinc

Automotive Electronics:
Gold, Silver, Germanium,
Indium

**Motor – New Traction
Technologies:**
Copper, Aluminium,
Magnesium,
Lead, Zinc, Nickel, Iron
**Permanent Magnets in Electric
Motors:**
Neodymium, Dysprosium,
Copper

Battery:
NiMH-Battery: Nickel,
Lanthanum, Neodymium,
Cobalt
Li-Ion-Battery: Lithium,
Cobalt, Nickel/Manganese,
Copper

Catalytic Converters:
Platinum, Rhodium
Palladium, Cerium,
Lanthanum, Yttrium
Lambda Sensor:
Zirkonium, Yttrium

Light Alloy Rim:
Aluminium

Bulbs: Tungsten,
Cerium, Yttrium,
Terbium

Source: Steinbach,
BGR, 2013



UNs Sustainable Development Goals (SDGs)



Source: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

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SDGs with Regard to Mining



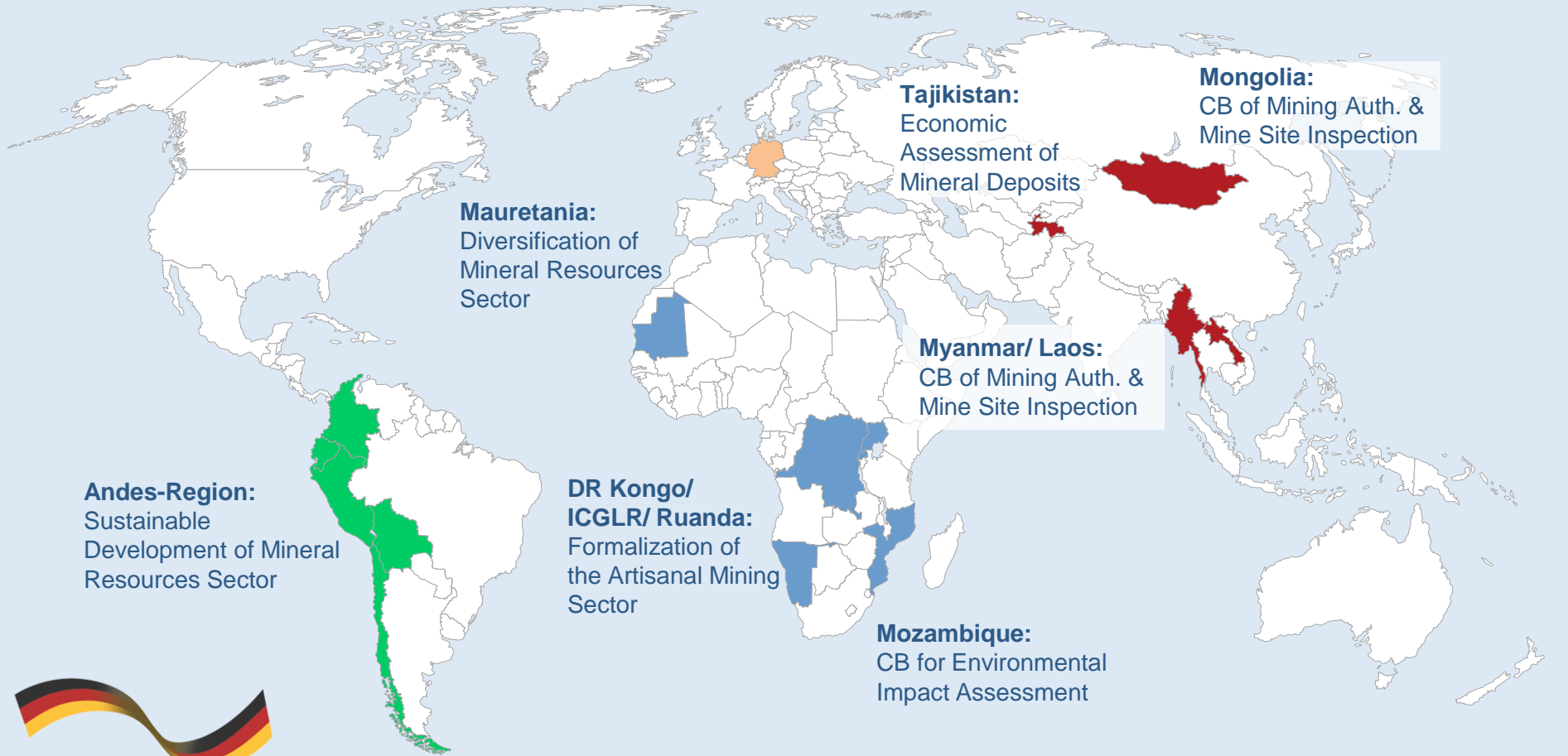
Opportunities:

- 8** Increased public revenues
- 9** Stimulation of innovation & infrastructure
- 1** Jobs, increased income
- 8** Qualified labour
- 10** Improved living conditions in rural areas (CSR)

Challenges:

- 3** Labour health & safety
- 15** Environm. degradation
- 10** Social license to operate
- 9** Inefficient production
- 8** 'Resource Curse'
- 10** Corruption

BGR TC-Projects related to Mining and Sustainability



german
cooperation
DEUTSCHE ZUSAMMENARBEIT

Technical Cooperation Projects

CB = Capacity Building



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BGR / DERA Projects related to Raw Materials and Sustainability

Arctic: Investigation of geodynamics & ecosystems

Pacific: Polymetallic Nodules Exploration

Indonesia: Cooperation on ex-tin ASM reclamation

Indian: Marine polymetallic sulphides exploration

 DERA Bilateral Cooperation / German Mining Network

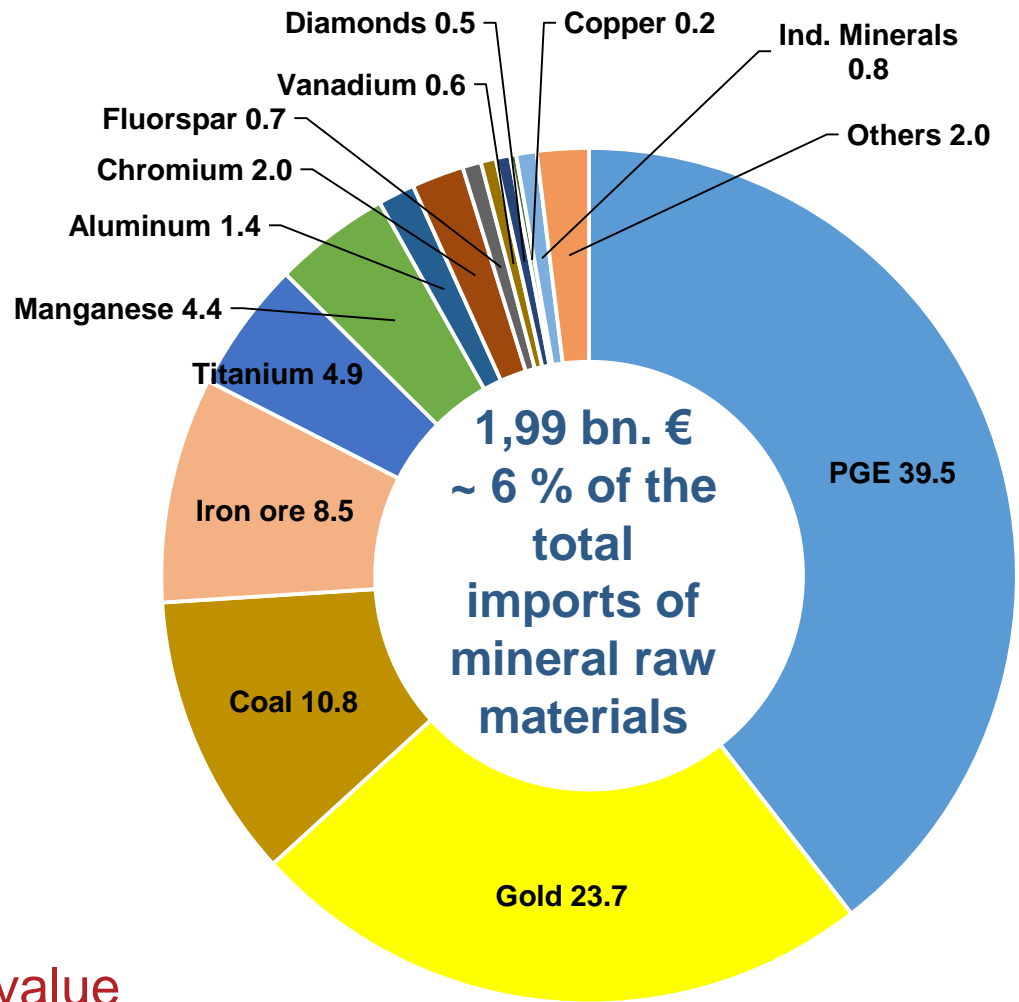
 Research Projects

Marine Exploration Projects



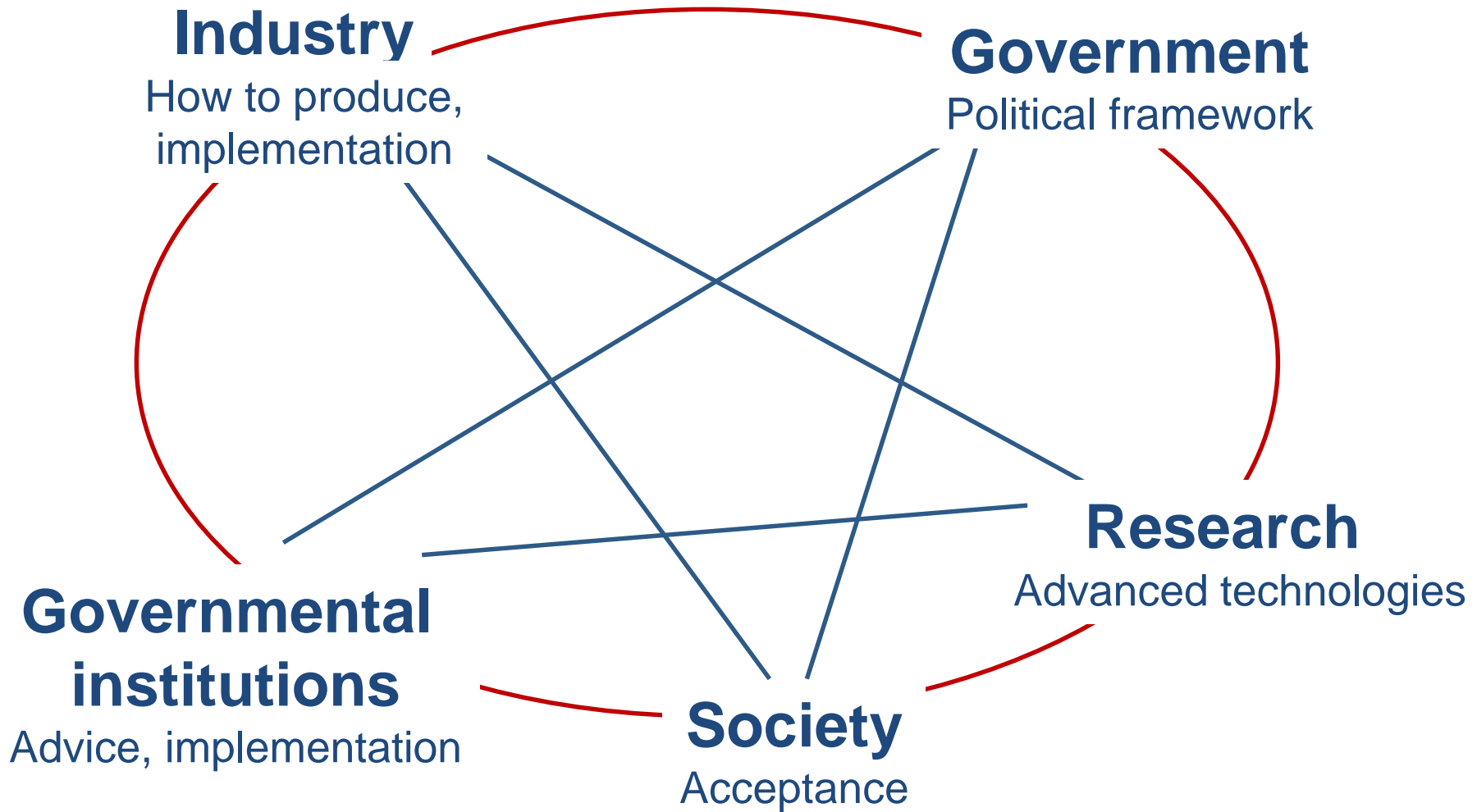
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German imports 2016 of mineral commodities from South Africa



(in %) after value

SDGs and Stakeholder Involvement





Thank you!

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