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EU Resource-Efficiency Flagship

Euromines Position

March 2011

Resource-Efficiency is the new Environmental Policy

- A central environmental, economic and security issue in a multi-polar world

- A policy concept that should yield optimum solutions to the many trade-offs that exist between the environmental, social and economic imperatives of Sustainable Development

Key challenges and opportunities

- Meeting minimum EU demand for metals & minerals, but also for jobs
- Remaining relevant in a global economy – "having something to sell to the world"
- Increased competition for resources and therefore increased supply risks
- Further de-coupling of economic growth from resource and energy use
  (Producing more value with less material)

Not all "Resources" face the same issues

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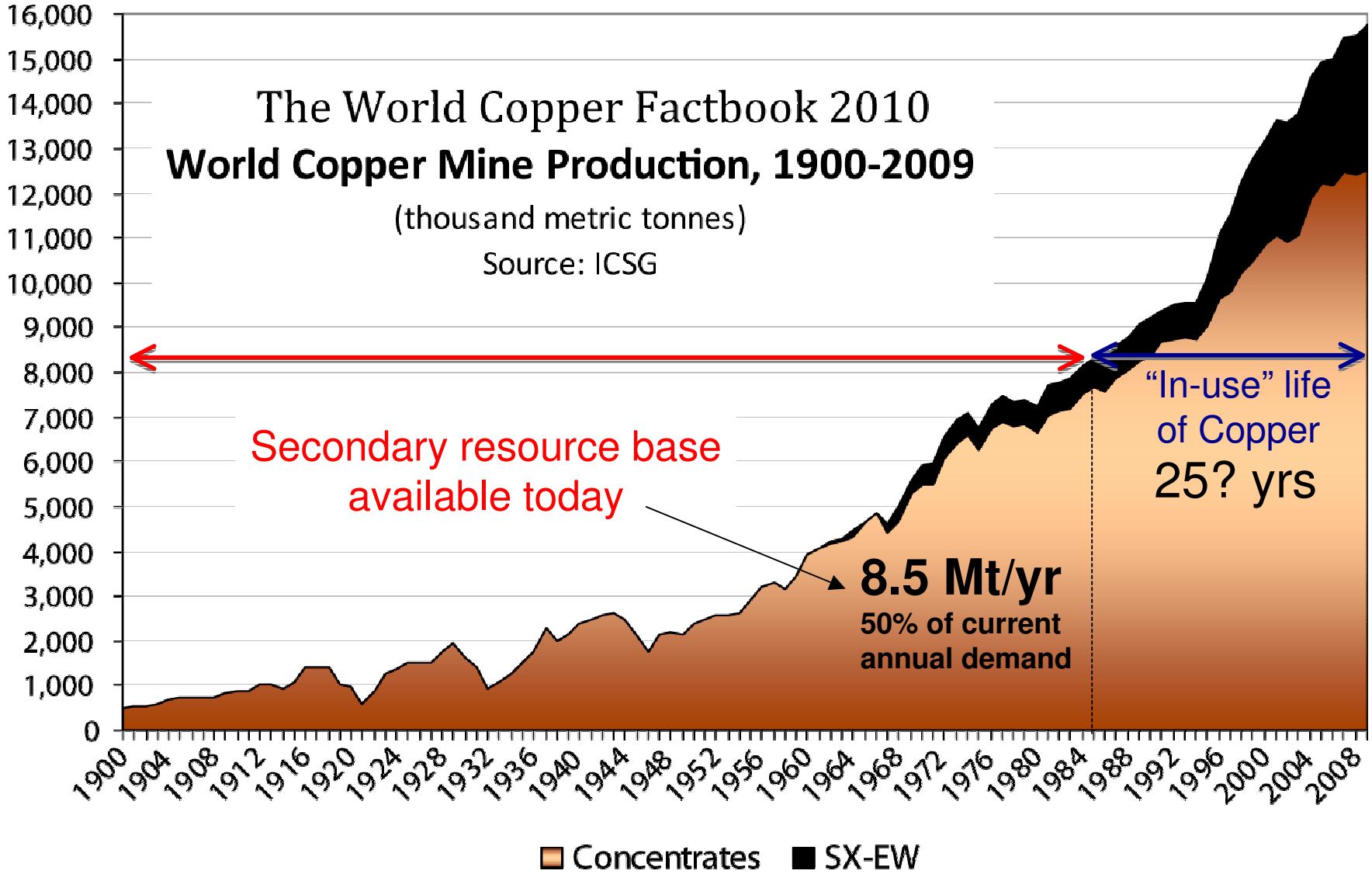
WHICH RESOURCES ARE SCARCE ?	Renewable Resources		Non-Renewable Resources	
Natural Resources	Water	Potable Water	Land & Soil	
	Nutrient cycling		Biodiversity	
	Carbon cycling			
	Other Ecosystem Services			
Biotic Resources	Fish		Oil	Energy Minerals
	Crops & Forest products		Gas	
	Livestock		Peat	
	Foodstuffs		Coal	
Abiotic Resources			Uranium	
			Sand	Non-Energy Minerals
			Clay	
			Gravel	
			Stone	
			Minerals	
			Metals	
Colour Legend:	= Scarce		= Abundant	

Meeting minimum EU demand for raw-materials and jobs

- Upgrade and maintenance of infrastructure (health, transport, energy,…)
- Accommodating increased resource-efficient urbanisation
- Deploying new sustainable technologies
- Sharing equitably the benefits of information technology
- Re-balancing lifestyles and employment across all Regions of the EU

Note: Recycling alone cannot meet the minimum needs of the EU before 2050

Minimum needs exceed available scrap



Source: International Copper Study Group

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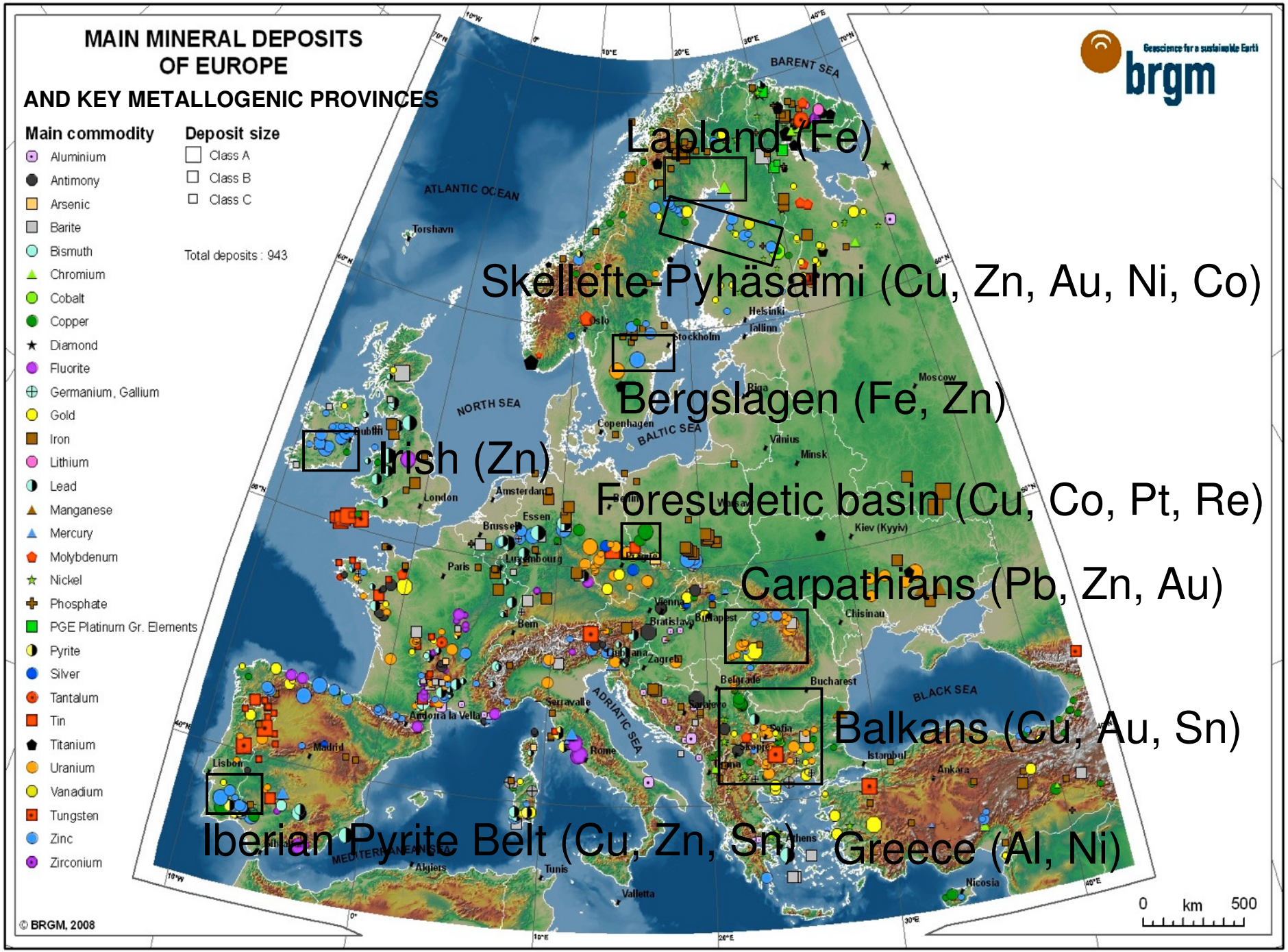
Having something to sell to the world

- Resource-Efficiency must include industrial competitiveness
- A factual baseline must be determined to put future performance into context
- EU Innovation must rival that of competitors and not be hindered by taxation
- "Regulation-Efficiency" is also critical
  - priorities must be nurtured


MAIN MINERAL DEPOSITS
OF EUROPE
AND KEY METALLOGENIC PROVINCES
Main commodity
Aluminium
Antimony
Arsenic
Barite
Bismuth
Chromium
Cobalt
Copper
Diamond
Fluorite
Germanium, Gallium
Gold
Iron
Lithium
Lead
Manganese
Mercury
Molybdenum
Nickel
Phosphate
PGE Platinum Gr. Elements
Pyrite
Silver
Tantalum
Tin
Titanium
Uranium
Vanadium
Tungsten
Zinc
Zirconium
Deposit size
Class A
Class B
Class C
Total deposits : 943
Lapland (Fe)
Skellefte-Pyhäsalmi (Cu, Zn, Au, Ni, Co)
Bergslagen (Fe, Zn)
Irish (Zn)
Foresudetic basin (Cu, Co, Pt, Re)
Carpathians (Pb, Zn, Au)
Balkans (Cu, Au, Sn)
Iberian Pyrite Belt (Cu, Zn, Sn)
Greece (Al, Ni)
ATLANTIC OCEAN
NORTH SEA
BALTIC SEA
BARENT SEA
BLACK SEA
ADRIATIC SEA
MEDITERRANEAN SEA
Torshavn
Oslo
Helsinki
Tallinn
Stockholm
Riga
Moscow
Copenhagen
Vilnius
Minsk
Dublin
London
Amsterdam
Berlin
Warsaw
Kiev (Kyyiv)
Brussels
Essen
Luxembourg
Paris
Prague
Vienna
Bratislava
Budapest
Chisinau
Bern
Ljubljana
Zagreb
Belgrade
Bucharest
Sarajevo
Sofia
Skopje
Tirana
Istanbul
Ankara
Andorra la Vella
Madrid
Lisbon
Rome
Serravalle
Athens
Nicosia
Algiers
Tunis
Valletta
0 km 500
© BRGM, 2008

Commodity

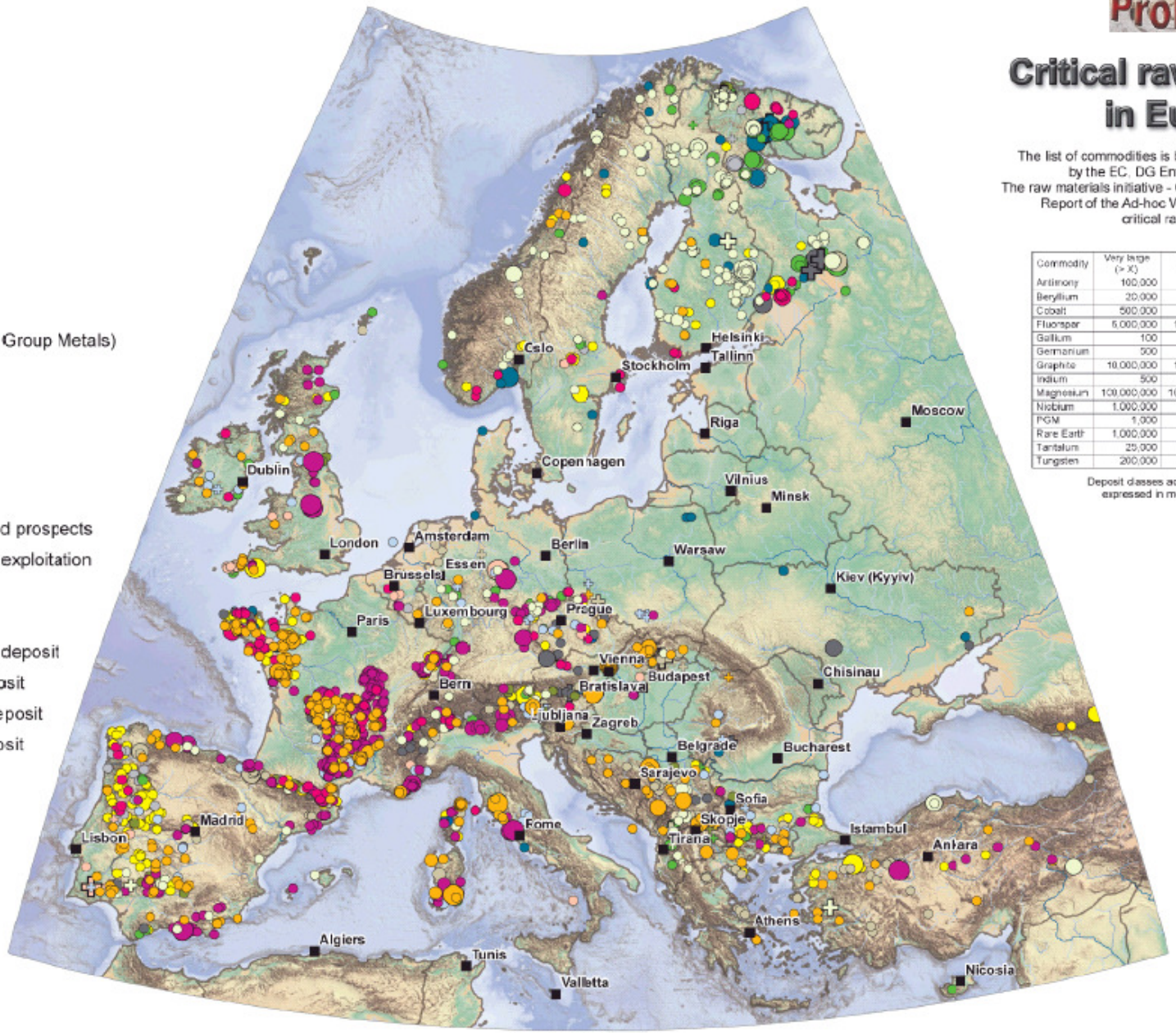
- Antimony
- Beryllium
- Cobalt
- Fluorspar
- Gallium
- Germanium
- Graphite
- Indium
- Magnesium
- Niobium
- PGM (Platinum Group Metals)
- Rare Earth
- Tantalum
- Tungsten

Pattern

- Old deposits and prospects
- Deposits under exploitation

Deposit size

- Very large deposit
- Large deposit
- Medium deposit
- Small deposit



0 500 km

Draft 2010/09 v. 1.1

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Critical raw materials in Europe

The list of commodities is based on the report published by the EC, DG Enterprise and Industry:
The raw materials initiative - Critical raw materials for the EU.
Report of the Ad-hoc Working Group on defining critical raw materias.

Commodity	Very large (> X)	Large (> X)	Medium (> X)	Small (> X)
Antimony	100,000	25,000	2,000	1,000
Beryllium	20,000	2,000	200	50
Cobalt	500,000	50,000	2,000	200
Fluorspar	5,000,000	1,000,000	200,000	50,000
Gallium	100	50	10	1
Germanium	500	100	20	5
Graphite	10,000,000	1,000,000	100,000	10,000
Indium	500	100	25	5
Magnesium	100,000,000	10,000,000	1,000,000	100,000
Niobium	1,000,000	100,000	10,000	2,000
PGM	1,000	100	10	1
Rare Earth	1,000,000	100,000	10,000	1,000
Tantalum	25,000	2,000	1,000	200
Tungsten	200,000	50,000	5,000	500

Deposit classes according to the tonnage expressed in metric tons (1,000 kg)

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Increased competition for resources

- Several measures are available
  - resource-efficiency only one of them
- Free & Fair Trade and Primary Production (i.e. mining) are also needed
- Diverse parallel measures will reduce the EU's vulnerability to supply risks
- Some measures may be counter-productive
  (e.g., stockpiling or resource-taxes, which create further market distortion)

Mineral Supply is directly related to Exploration effort

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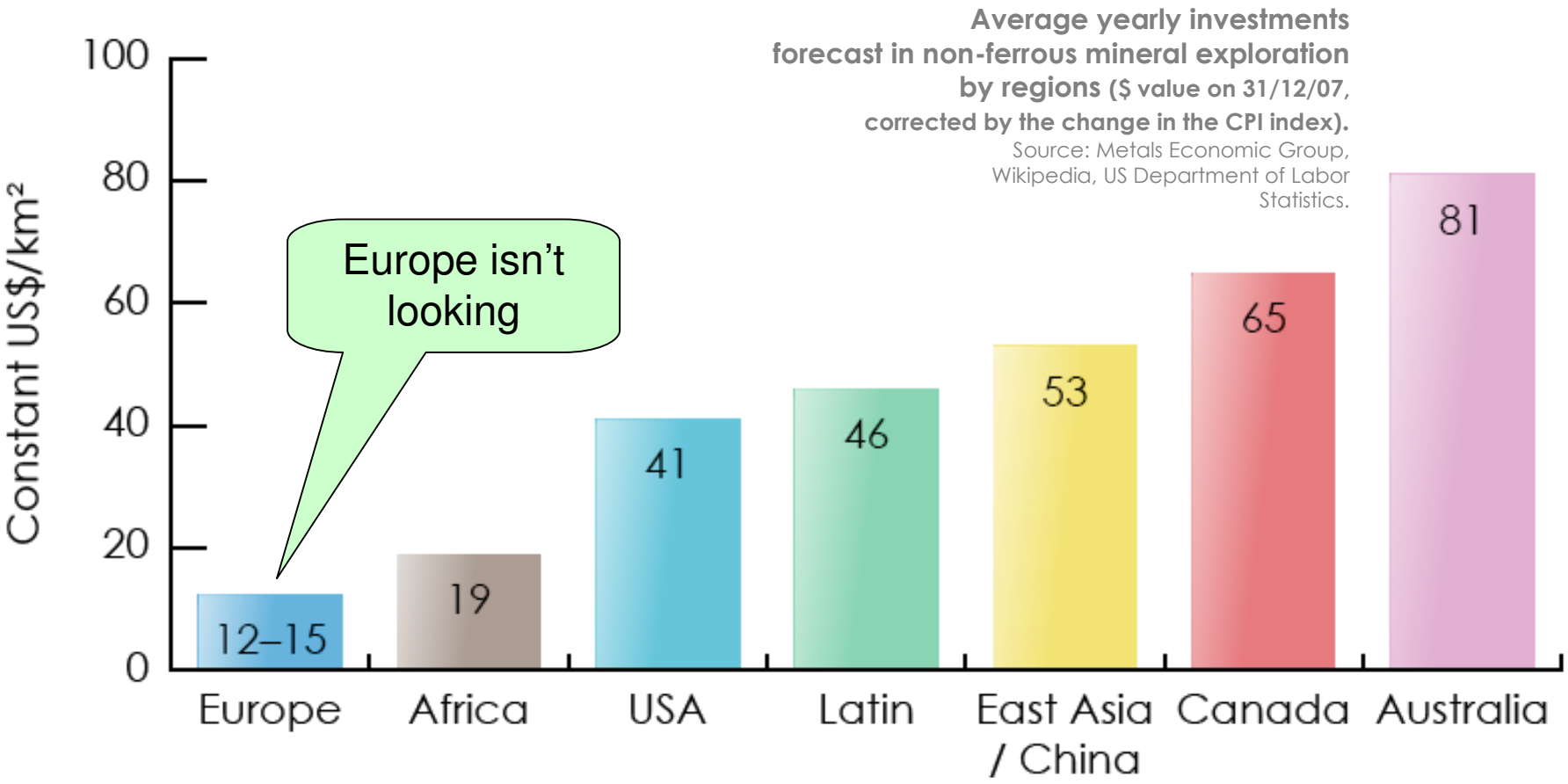


Source: P. Christmann 2009

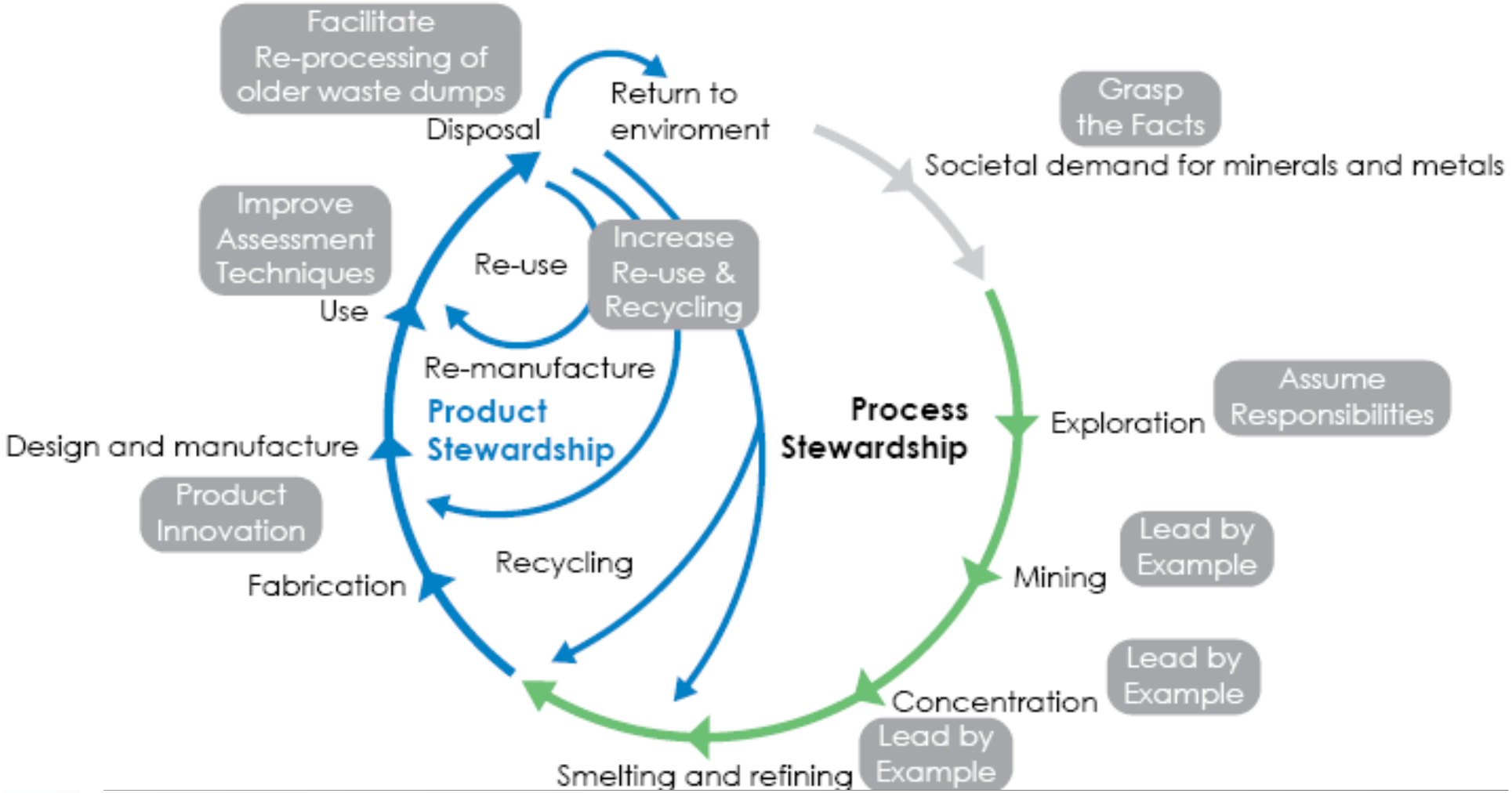
Further de-coupling of economic growth from resource use

- Relative de-coupling comes from improved standards of living

- Historical long-term demand for base-metals has steadily increased by 1-3% per annum globally and this is likely to continue between now and 2050.

- Further decoupling must be balanced with development, climate and energy security needs

Resource Efficiency requires contributions from the whole value-chain



Euromines 2050 Resources Vision

By 2050, the EU should:

- Achieve 100% responsible and balanced **sourcing** of its mineral resources
- Where necessary, achieve **secure closure** of all historically abandoned waste dumps in the EU
- Be the "**international partner of choice**" for several aspects of mineral resource management (sustainable development and transformation of primary and secondary resources)
- **Lead by example**, by regularly meeting its own resource-efficiency targets using validated indicators and assessment techniques

Suggested 2020 objectives

By 2020, the EU should:

- Attract the same level of **exploration investment** as Africa per hectare
- Match the degree of self-sufficiency in mineral resources of Asia
  - **develop the world-class ore-bodies** in Greece, Iberia, Ireland, Poland, Romania and Scandinavia (including Finland)
- Possess a complete modern database and **economic assessment** of primary and secondary resources across the EU
- Have the **liability framework** in place to allow public-private re-processing and/or secure closure of historically abandoned waste
- **Lead the world in technology** for several aspects of mineral resource management and efficiency (design, exploration, extraction, transformation to products for export, re-processing, recovery, reuse, recycling, materials flow monitoring, life-cycle assessment)