Potential economic and environmental benefits resulting from the reprocessing of mine waste

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A Wind of change in EU policy

- Communication launching the **Raw Materials Initiative (2008)**
- Communication on Industrial Policy (October 2010)
- Communication on Trade Policy (November 2010)
- 2nd Communication on the **Raw Materials Initiative (January 2011)**
- EC Secretariat General-led Communication on implementation of the resource efficiency EU 2020 strategy flagship (early 2011)
- Roadmap on resource efficiency and low carbon (Jun 2011)

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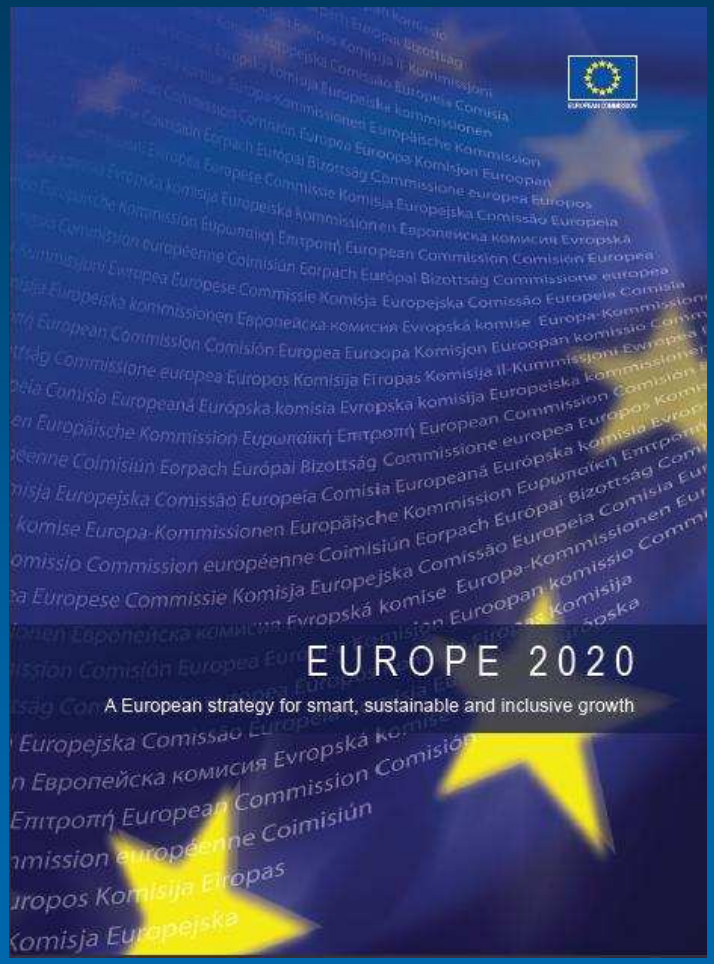
Five measurable EU targets for 2020

Steering the process and translating into national targets:

- ***for employment;***
- ***for research and innovation;***
- ***for climate change and energy;***
- ***for education; and***
- ***for combating poverty.***



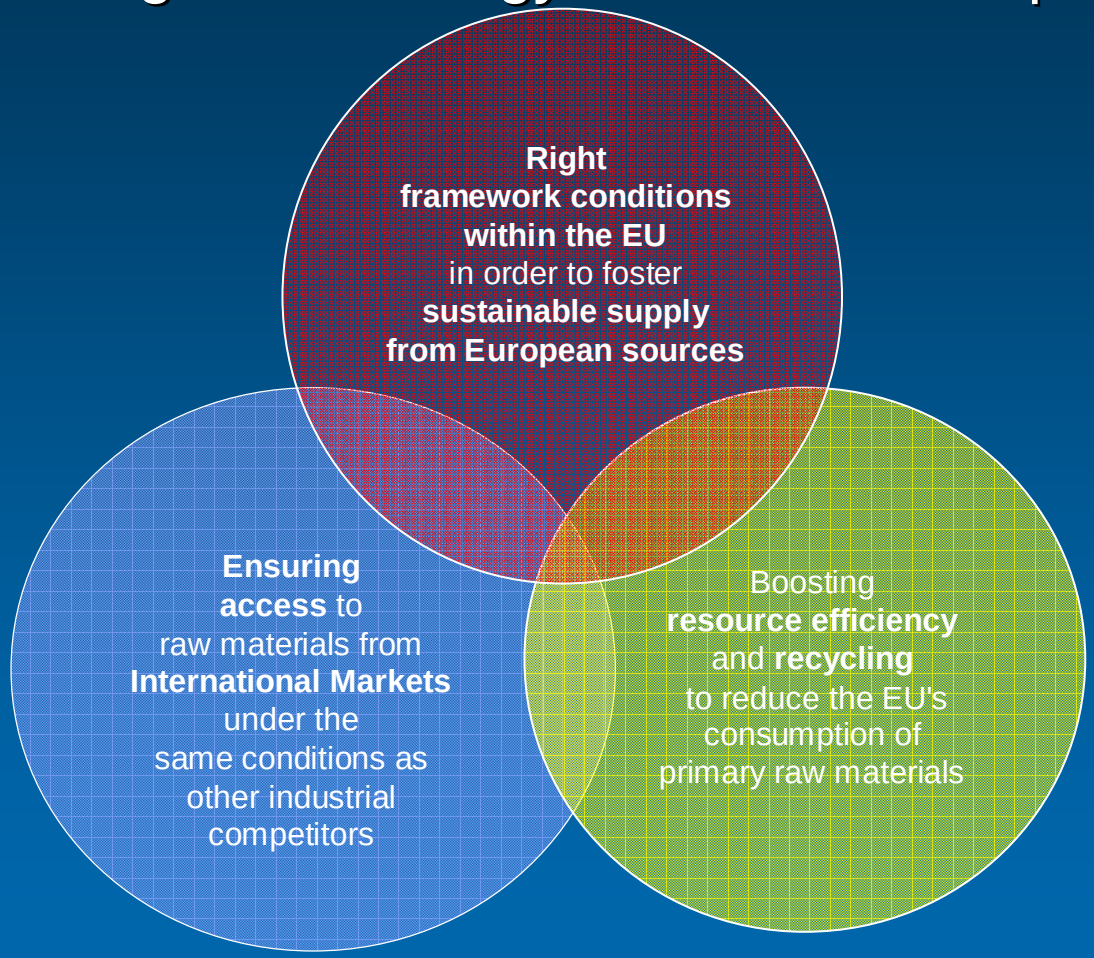
The EU Single Market

- 500 million consumers
- 220 million workers and
- 20 million entrepreneurs
- One out of four jobs in the private sector in the European Union is in manufacturing industry, and at least another one out of four is in associated services that depend on industry as a supplier or as a client.

- 80% of all private sector research and development efforts are undertaken in industry – it is a driver of innovation and a provider of solutions to the challenges our societies are confronted with.
- Manufacturing itself accounts for 75 % of exports.
- **All sectors are important and the Commission will continue to apply a tailor made approach to all sectors**.

The Raw Materials Initiative (RMI)

Integrated strategy based on three pillars



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Background

- The Commission has adopted the Communication on raw materials which includes an integrated strategy to ensure the availability of raw materials for the European Union, including but not limited to the 14 metals and minerals identified as currently being critical to the EU. The text on international co-operation from the Communication refers to a "raw materials diplomacy" to be "actively pursued by the EU with a view to securing access to raw materials, in particular the critical ones, through strategic partnerships and policy dialogues". This dialogue includes the possibility for discussions with all countries, including exporters.

- The European Union has adopted a wide range of measures, including Directive 2008/98/EC on Waste, to use waste as a valuable resource, thus contributing to a more resource-efficient European Union. Under the EU waste acquis, Member States are indeed responsible for proper waste management (see Article 13 of Directive 2008/98/EC).

- The Communication on the report on the Waste Thematic Strategy[3] recently adopted by the Commission underlines the good progress in increasing recycling rates in recent years in the European Union. It also shows the considerable distance still to go, particularly in some Member States, and the need to ensure a proper enforcement of the European Union waste acquis. The Commission will continue to prioritise its actions to supporting Member States in achieving a full implementation of the European Union waste acquis notably with respect to the minimum recycling targets and to eradicate illegal waste management practices. Better implementation of waste legislation and support for innovation and investment in waste treatment and management will be a major pillar of the Commission's resource efficiency strategy, implementing the resource efficient Europe flagship of the Europe 2020 Strategy[4].

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The global economy has grown significantly over the past 20 years

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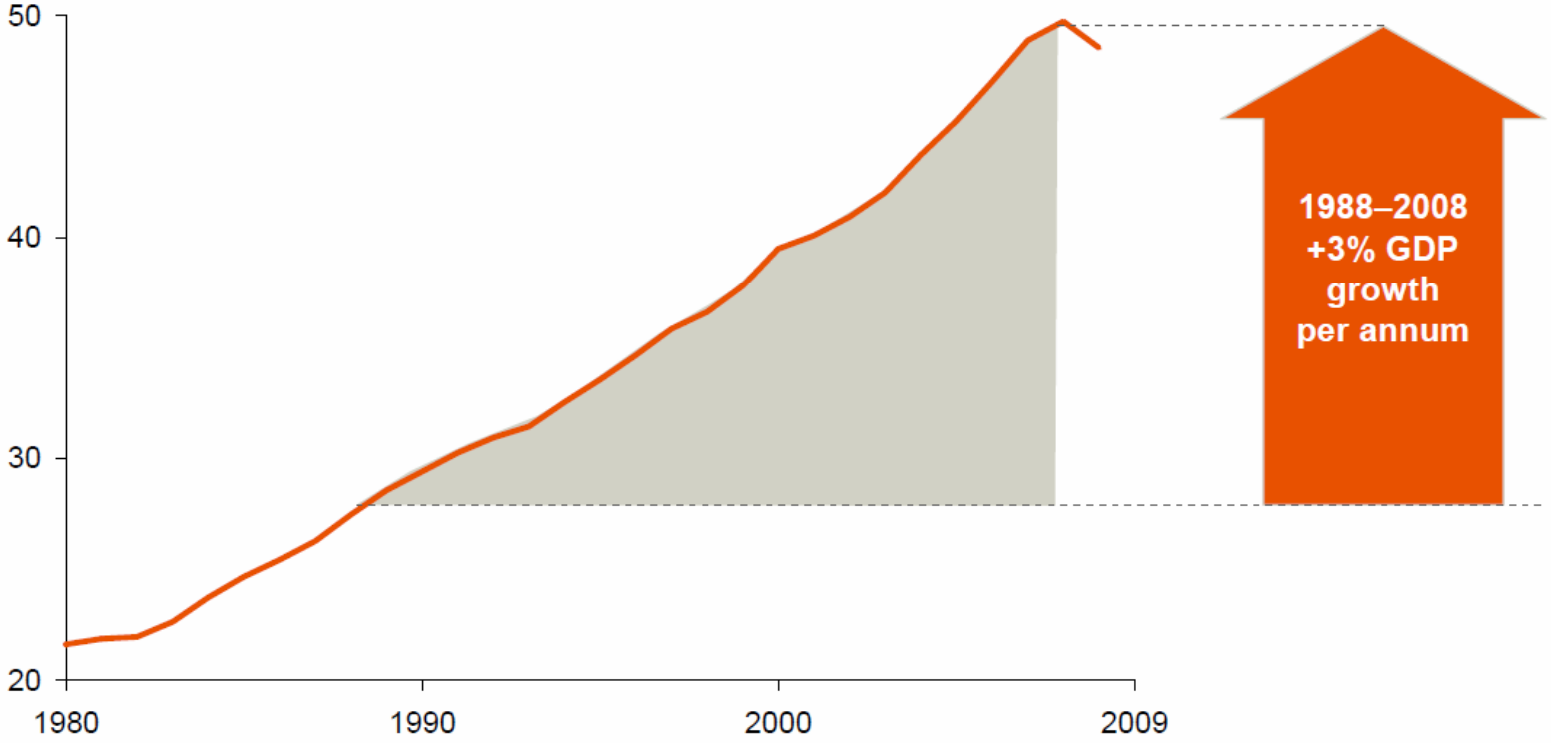
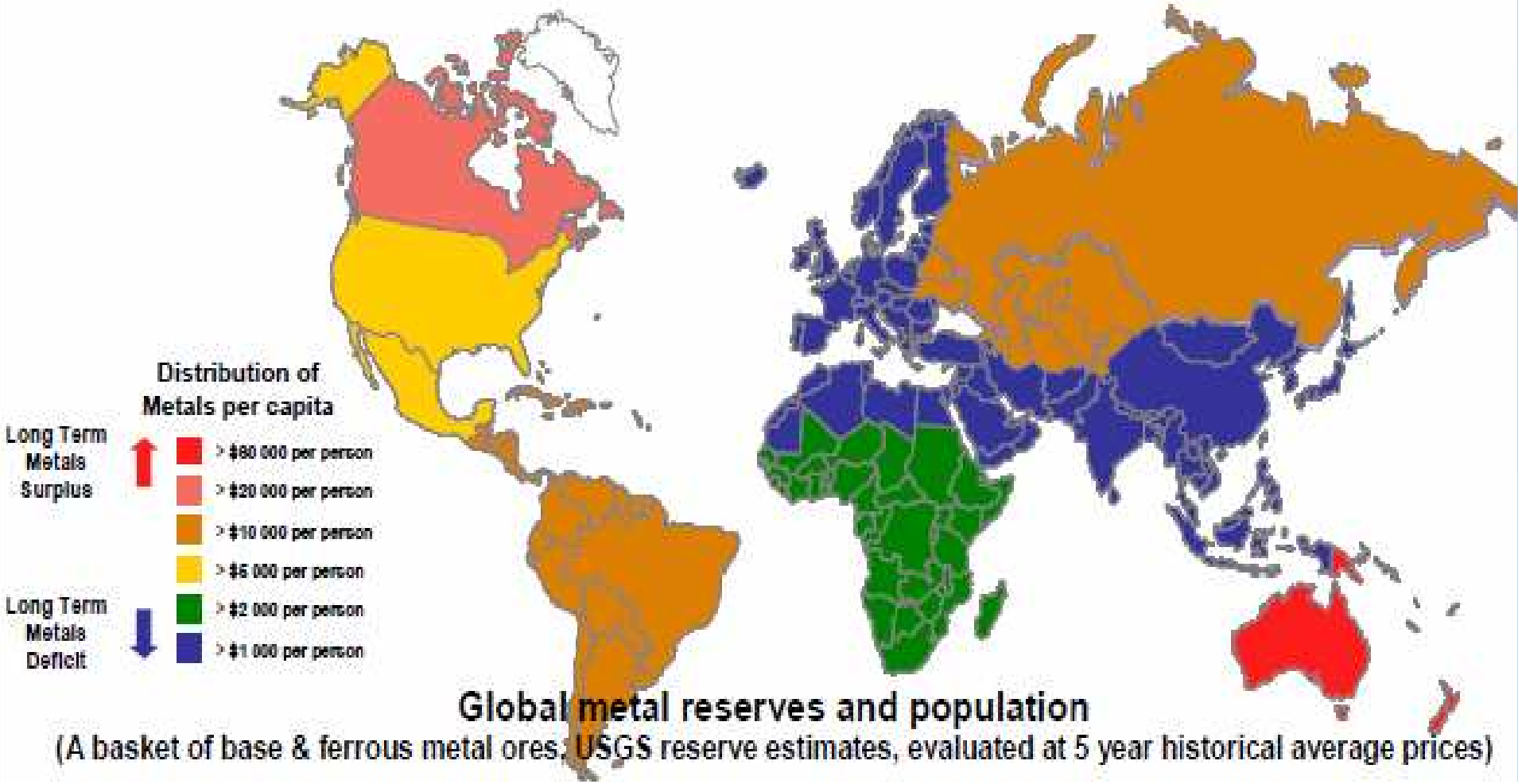
Global GDP
US$ Trillions, Real at 2005



SOURCE: IMF World Economic Outlook Database 2009.

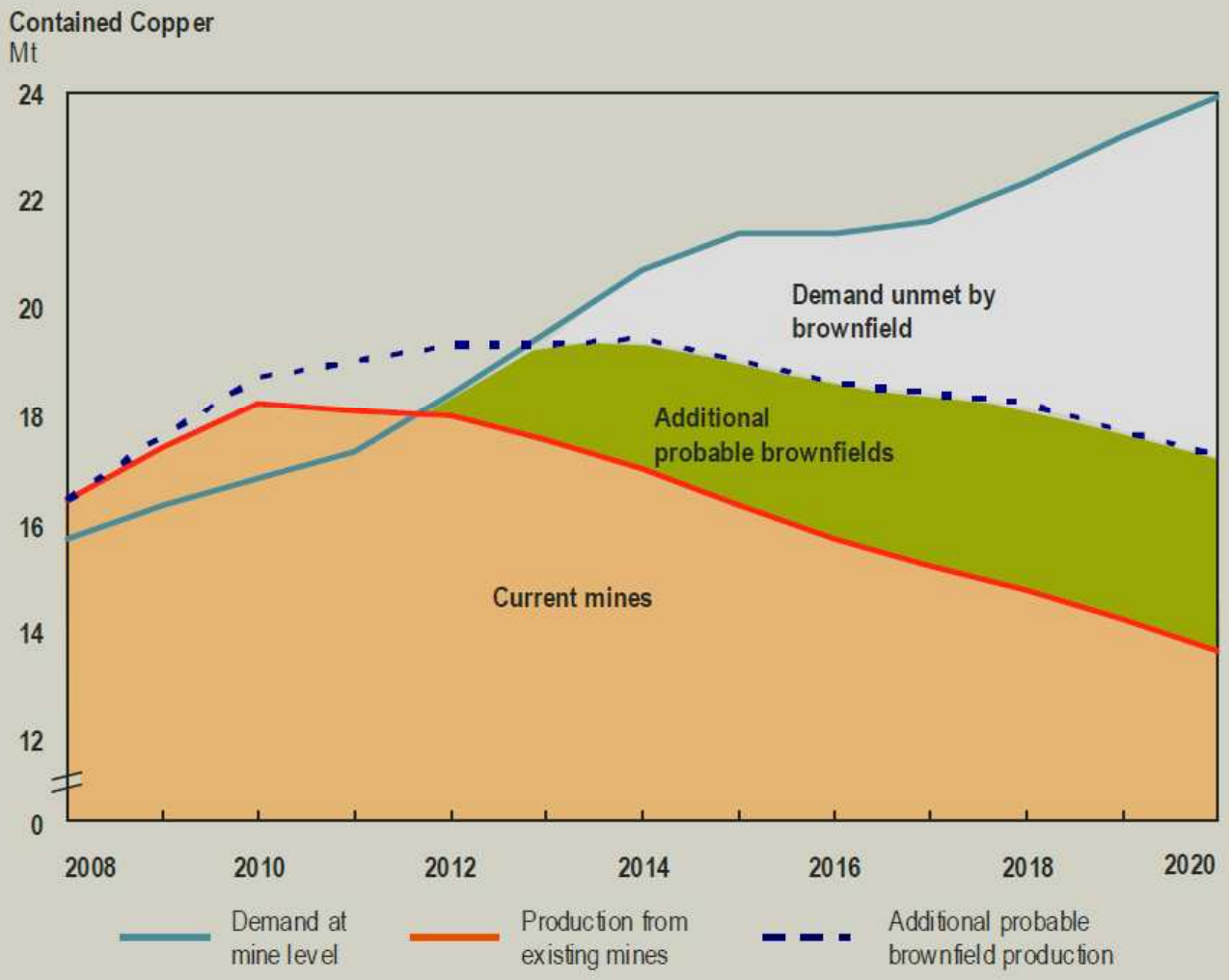
Populations and resources are geographically misaligned



Global metal reserves and population

(A basket of base & ferrous metal ores; USGS reserve estimates, evaluated at 5 year historical average prices)

Risk that copper supply gap will widen



Source: BHP Billiton; McKinsey analysis
Includes projects classified by Brook Hunt as probable

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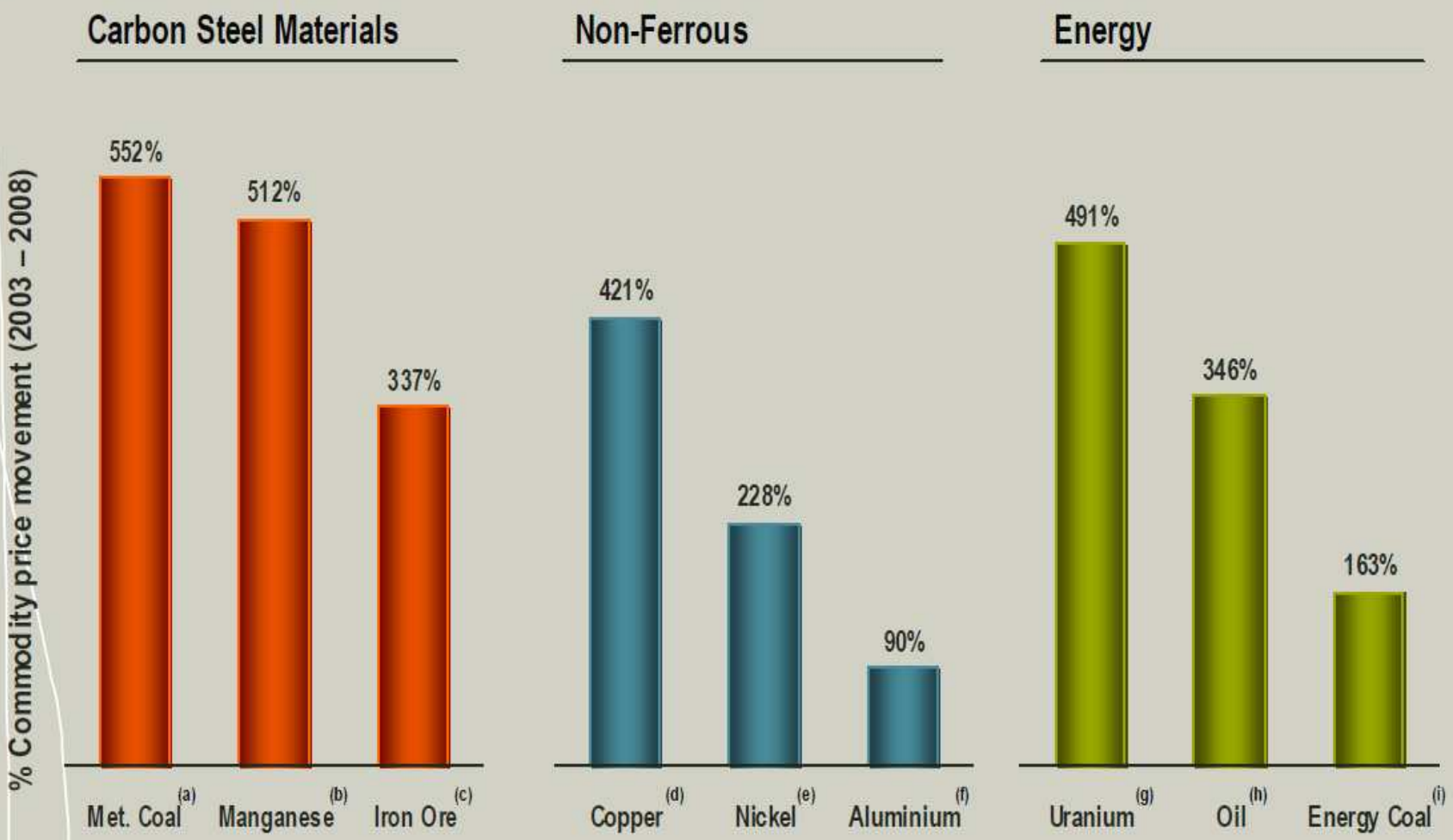
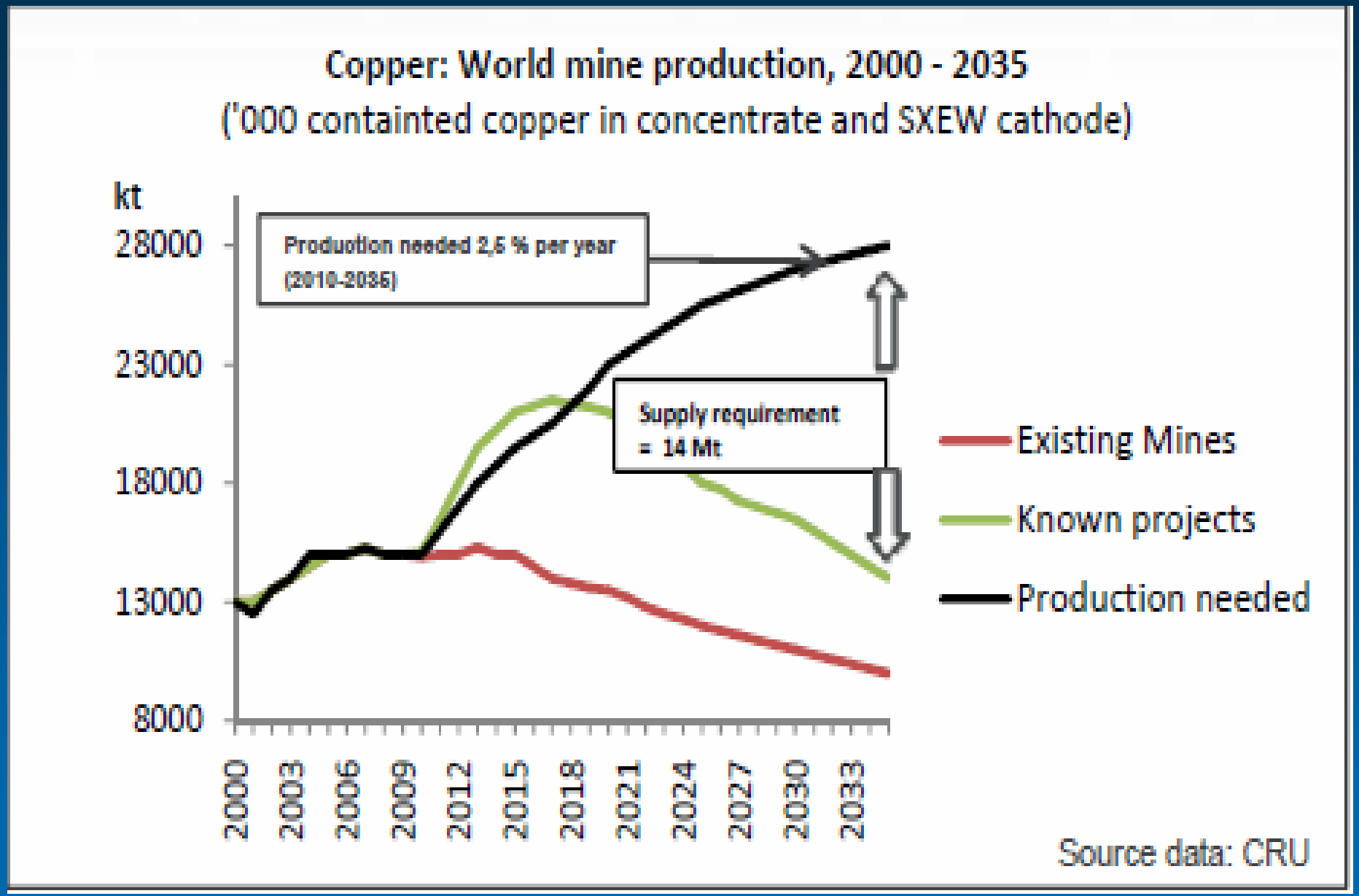
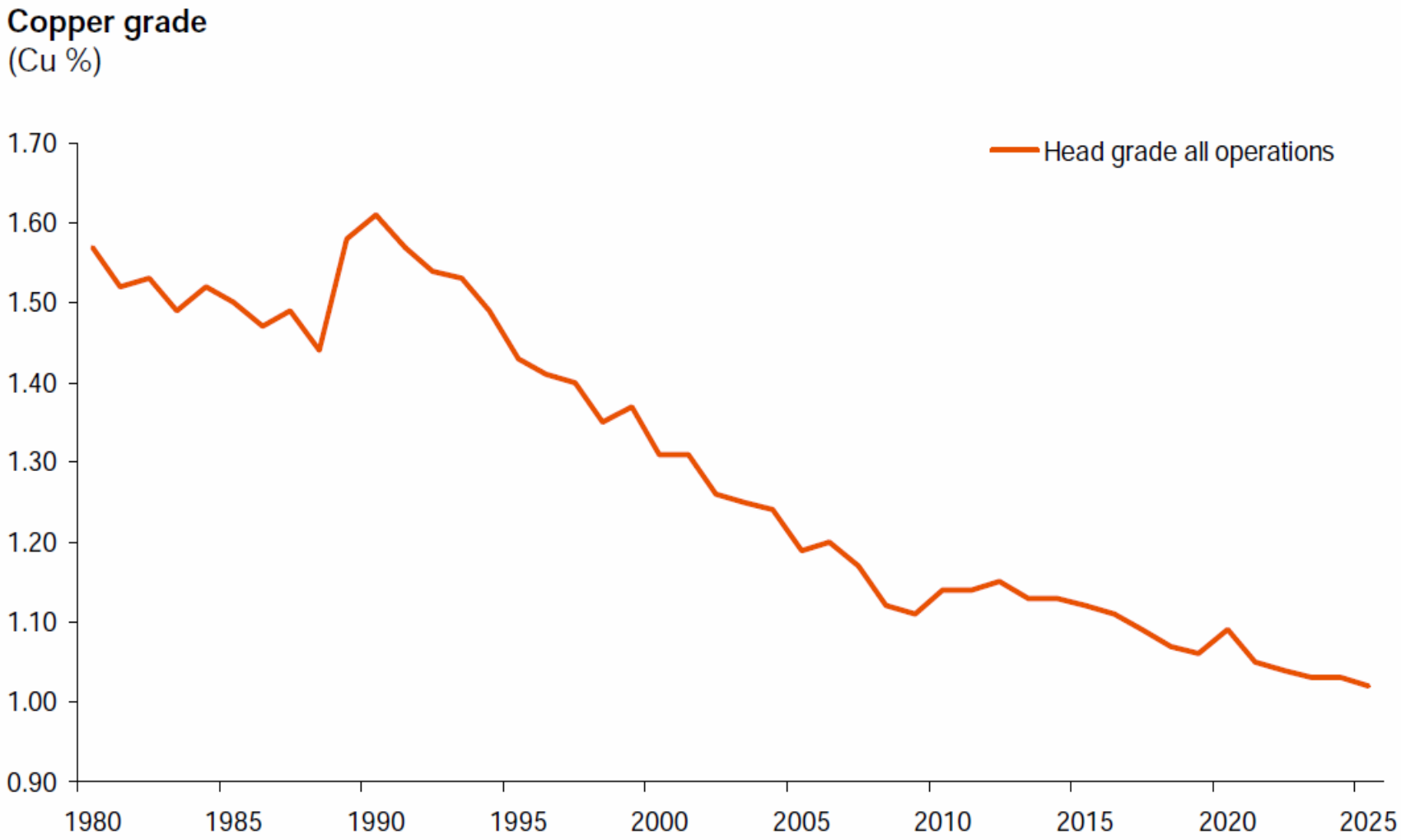
Significant price increases across all product groups



a) Hard coking coal based on Peak Downs/Goonyella/Hay Point FOB. JFY2008 forecast prices calculated based on 206-240% increase above JFY2007 benchmark – per BHP Billiton announcement 9-Apr-2008.


Copper: World mine production, 2000 - 2035
('000 containted copper in concentrate and SXEW cathode)
kt
28000
23000
18000
13000
8000
Production needed 2,5 % per year
(2010-2036)
Supply requirement
= 14 Mt
Existing Mines
Known projects
Production needed
2000
2003
2006
2009
2012
2015
2018
2021
2024
2027
2030
2033
Source data: CRU

Declining HEAD Grades



Source: Brook Hunt (WoodMac)

Securing the supply

- A couple of examples: the recycling of all mobile phones in the EU will yield about 4-5 % of the EU's demand for gold. The recycling of all computers and circuit board in the EU would possibly cover another 6-7 %.
- 100% recycling of end-of-life copper would only supply up to 35% of current demand.
- The current surge in demand for materials is not a result of a major loss of material, but an increase of material requirements to improve the living standard of millions of people around the world.

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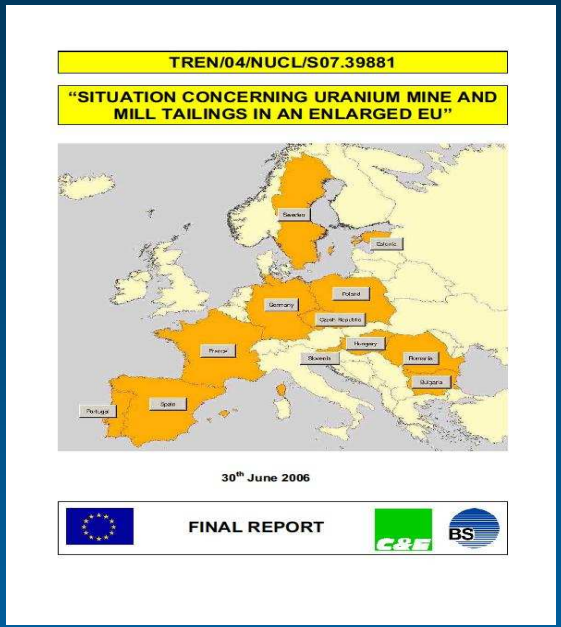
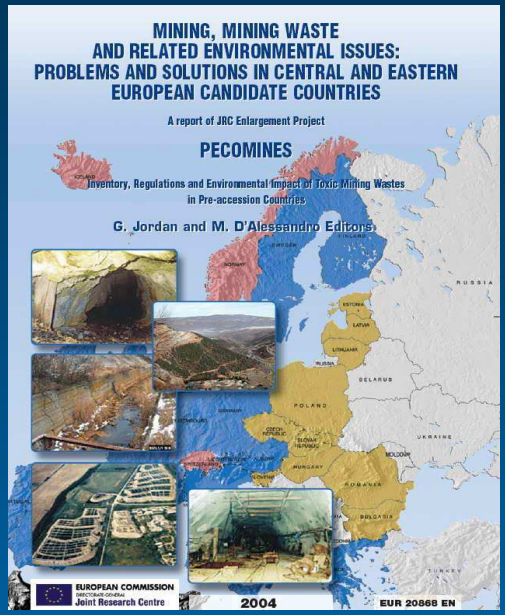
EU Surveys done so far





- **UNEP Reducing Environment & Security Risks from Mining in South Eastern Europe,** 2004
- **EU Guidance Document for a risk-based pre-selection protocol for the inventory of closed waste facilities, Feb 2011 (Final draft)**

The JRC Pecomines Project

- The PECOMINES project undertook it to conceptualise and demonstrate a standardised regional **inventory** of waste sites from mineral mining in the Pre-Accession countries in relation to catchment areas.
- It attempted to develop a concept for regional **impact assessment** allowing to link the site/source related indicators with spatial information at catchment scale.
- The PECOMINES inventory combines site specific information coming from existing data bases in the candidate countries, which is harmonised through the PECOMINES questionnaire and put into a relational data base.

The EU Mine Waste Directive

Obligation of the Member States by 2012 to establish

- *inventories* ***of closed/abandoned waste facilities causing or likely to cause serious negative effects on environment or human health***
- ***periodically*** *updated****, made available to the*** *public*
- **development of** methodologies **for:**
  - **Drawing up** inventories
  - Rehabilitation **of most polluting facilities**

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Framework conditions for investments

- The inventories and the related environmental information needs to be complimented also with mineralogical information.

- National and regional regulations need to have sufficient provisions with regard to
  - Protect the investment,
  - Allow for efficient and as short as possible permitting times since in most cases the relatively low grades will make the investment otherwise unattractive,
  - Liability issues linked to old mine workings,
  - Issues with regard to historic, cultural heritage and archaeological findings.

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Vision for 2020 and beyond

- **By 2012**
  - launch of the EIP on Raw Materials: research into new and more resource efficient resource access and management; review of regulatory requirements
  - Complete database by MS on old mine waste sites (EU Mine Waste Directive)
  - EU Standard methodology for prioritisation and economic assessment of such deposits

- **By 2015**
  - all Member States have new or revised Mineral Policies in place
  - All MS Land-planning policies include references to extractable mineral deposits
  - Revision of BAT note on mine waste management

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Vision for 2020 and beyond

- **By 2020**
  - **Complete modern database and economic assessment of EU primary and secondary resources**
  - **Revised regulatory framework facilitating sustainable management of resources and uptake of innovation**
  - **EU Leadership in technology for all aspects of resource management (exploration, extraction, processing, re-processing, reuse, recycling, recovery, design, …)**
  - **EU ressource diversification**

- **By 2030**
  - **High tech mines in place in Europe**
  - **Technology proven and being exported**
  - **Optimised valorisation of available resources, i.e.**
    - **new technologies in place,**
    - **removal of legacy sites,**
    - **increased reuse, recovery and recycling rates,**
    - **material efficiency use in higher performance products**

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