



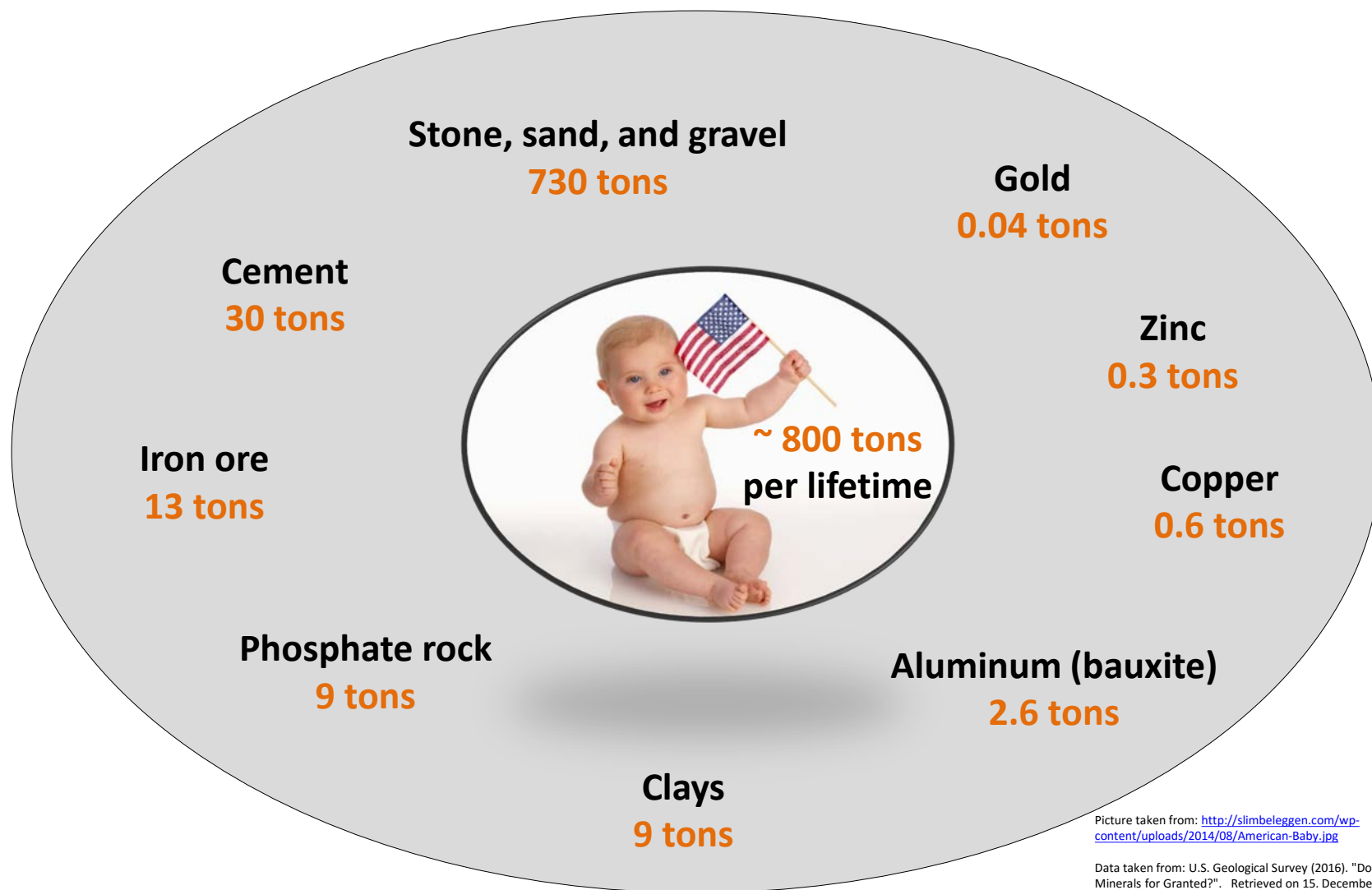
Resource classification

What, why, how?

Ulrich Kral



Use of nonfuel mineral commodities



Picture taken from: <http://slimbeleggen.com/wp-content/uploads/2014/08/American-Baby.jpg>

Data taken from: U.S. Geological Survey (2016). "Do We Take Minerals for Granted?". Retrieved on 15. December 2016, from <https://minerals.usgs.gov/granted.html>.

Mining the earth crust

World copper

Resources (identified): **2'100 million tons**

Reserves (2016): **720 million tons**

US Geological Survey

<http://theworld10things.blogspot.co.at/2010/12/10-biggest-holes.html>

Mining the anthroposphere



Copper

Resources (identified):

? million tons

Reserves (2016):

? million tons

<http://www.wasseraktiv.at/vorsorge/>

What is resource classification all about?

**Its all about predicting
potentially recoverable quantities under
defined conditions!**

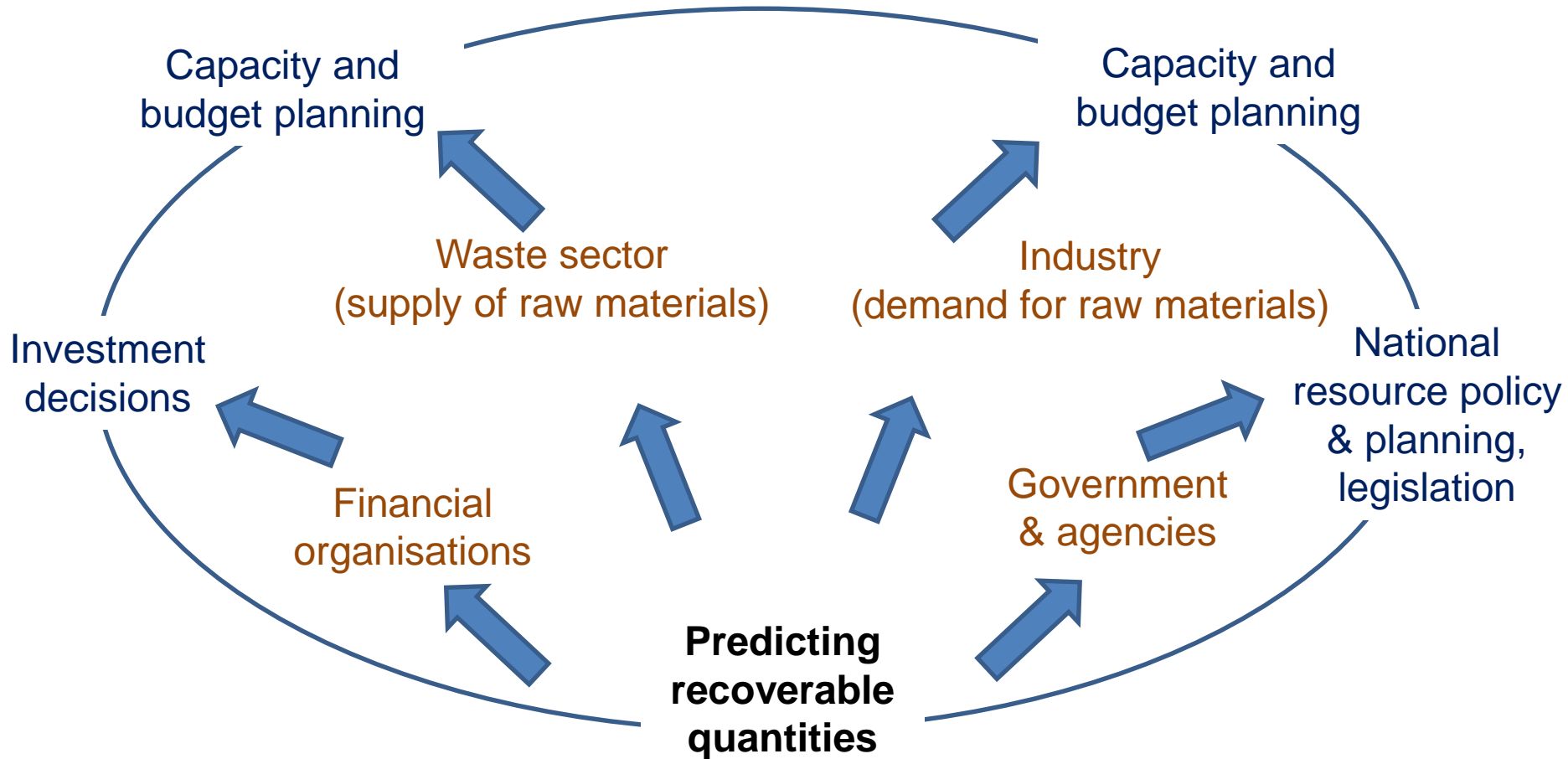
**“The quantity of usable resources is not fixed but changes
with progress in science, technology, and exploration and
with shifts in economic conditions.”**

McKelvey, V.E. (1973): Mineral resource estimates and public policy. In United States mineral resources. Brobst, D. A. and W. P. Pratt (Ed). Professional Paper 820, Washington.

**A need for consistency and transparency in communicating
recoverable quantities.**

The slide has been adopted from the following presentation: Coll, C. (2017). Application of UNFC and PRMS Bridging Document for oil & gas classification and management. EFG/EGRC Conference on International cooperation on natural resources: geoscientists' contribution to enhanced governance, policy making and attainment of the Sustainable Development Goals. 9. February 2017, Brussels.

Why is a need?



All stakeholders require complete, consistent and reliable information on future production secondary raw materials.

Production of secondary raw materials

Recovery projects: Resource extraction from the anthropogenic sources

Demolished buildings



© Mayer & Co GmbH

Landfills



© RWTH Aachen: Institut für Aufbereitung und Recycling

APC Residues



© BHS Sonthofen

How to classify resources on project level?

Project definition

Product: Copper

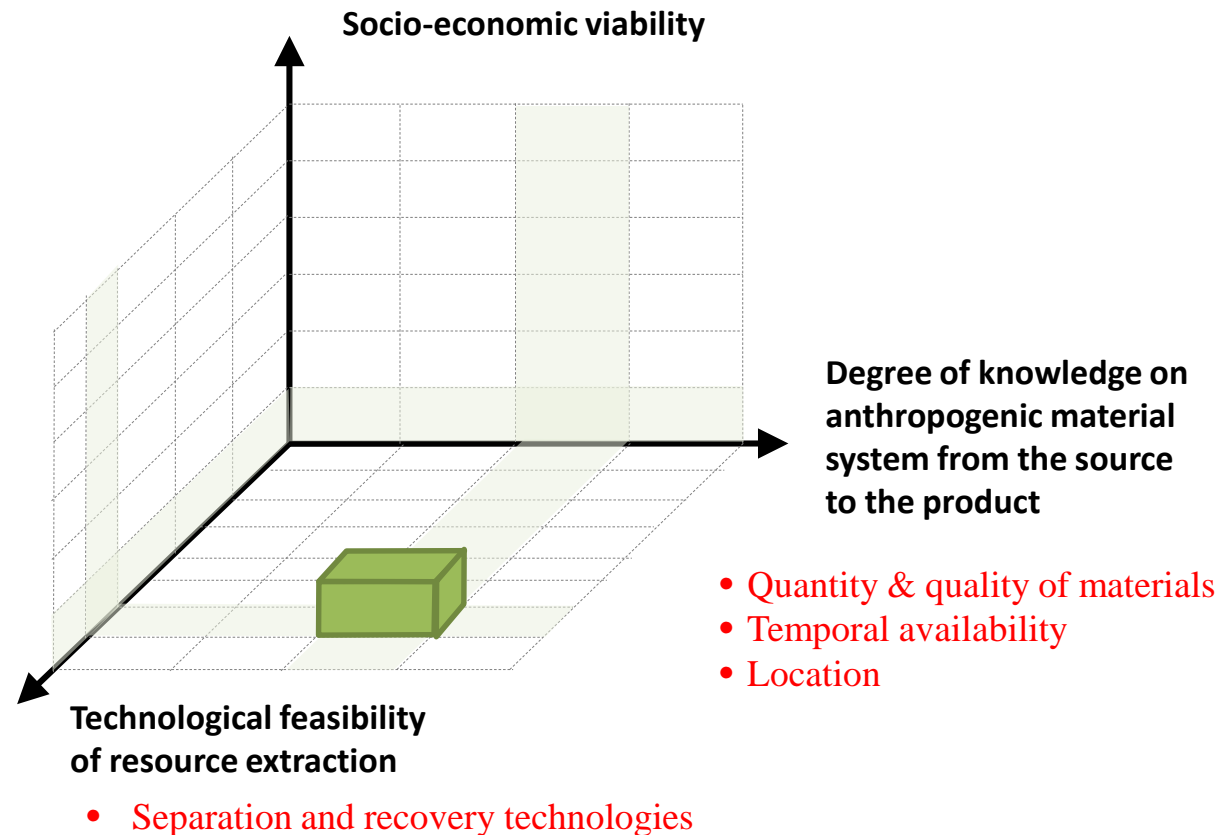
Source: Bottom-ash

Year: 2018-2020

Identification of critical
factors for the viability of
material recovery projects

Potentially
Commercial
Project

- Environmental profile
- Costs & revenues
- Ownership (legal access to the source)



How to classify resources on project level?

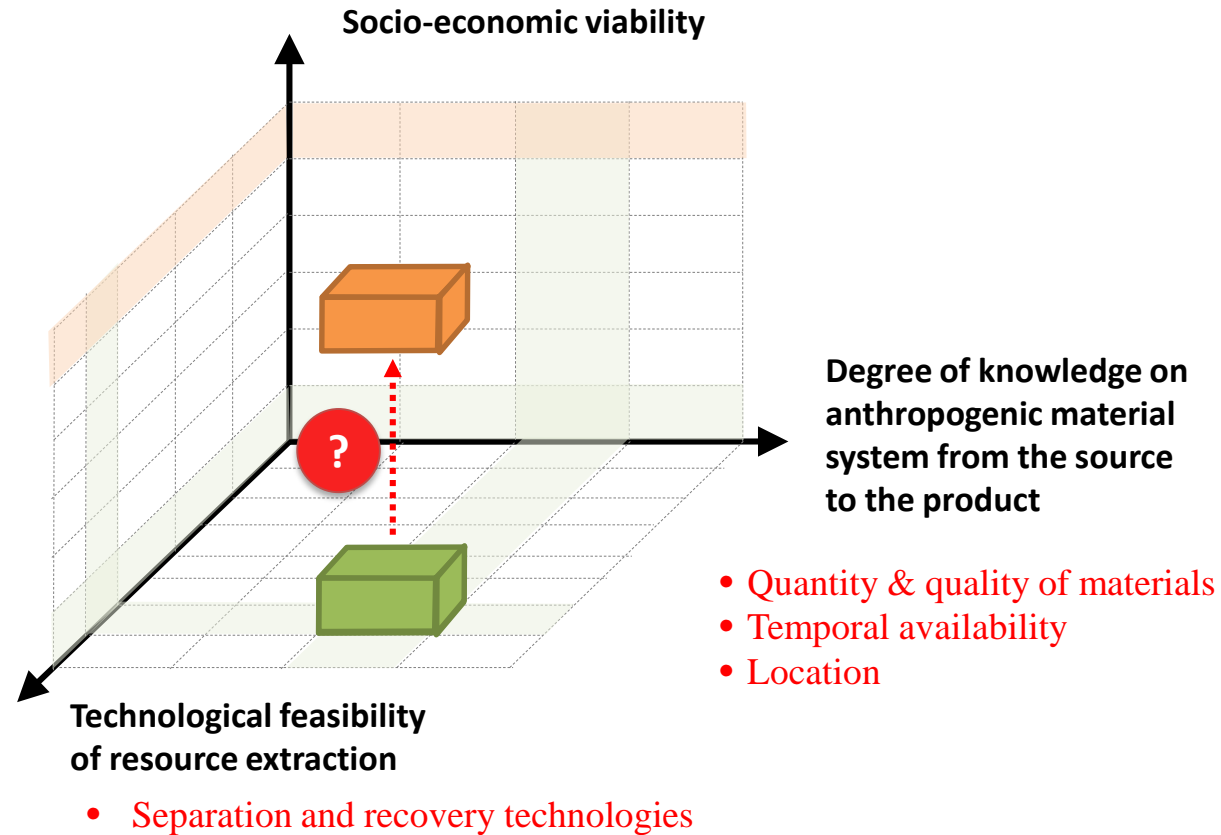
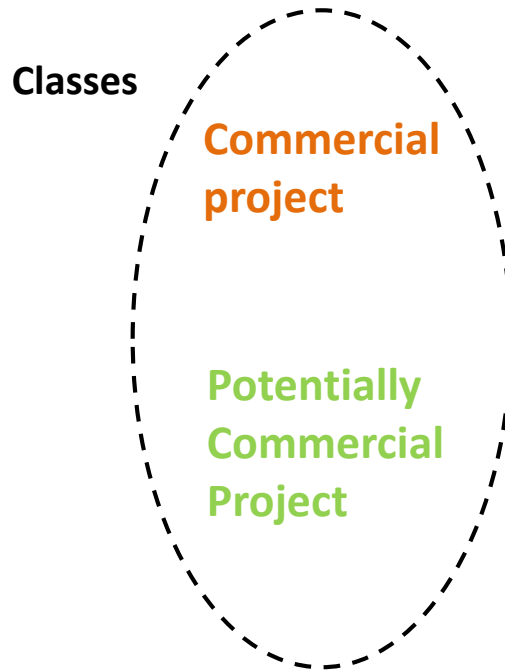
Project definition

Product: Copper

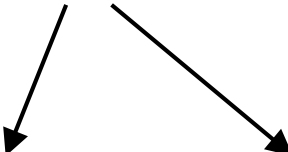
Source: Bottom-ash

Year: 2018-2020

- Environmental profile
- Costs & revenues
- Ownership (legal access to the source)



Resource classification scheme



	Class	Sub-class
Past production	Sales production	
	Non-sales production	
Future production	Commercial Projects	On Production
		Approved for Development
		Justified for Development
	Potentially Commercial Projects	Development Pending
		Development on Hold
	Non-Commercial Projects	Development Unclassified
		Development Not Viable

Part of UNFC-2009

Reporting

European Minerals Knowledge Data Plattform (EU-MKDP)



MINERALS YEARBOOK

View data for primary minerals production, trade, resources and reserves; and for secondary materials



FORESIGHT STUDY

View Foresight Study reports on raw materials supply and demand in the EU

**Integrated resource classification
facilitates consistency and transparency in communicating
past and future production of raw materials.**

Summary on resource classification

- What?** Its all about predicting potentially recoverable quantities under defined conditions.
- Why?** Multiple stakeholders need complete, consistent and reliable information on future production of (primary and) secondary raw materials.
- How?** Standardized framework for the classification of material resources/reserves.