

UNFC for Anthropogenic Resources: Application Examples

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UNFC EUROPE, ENSURING SUSTAINABLE RAW MATERIAL
MANAGEMENT TO SUPPORT THE EUROPEAN GREEN DEAL
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Application Examples for Anthropogenic Resources

G-axis: Degree of Confidence

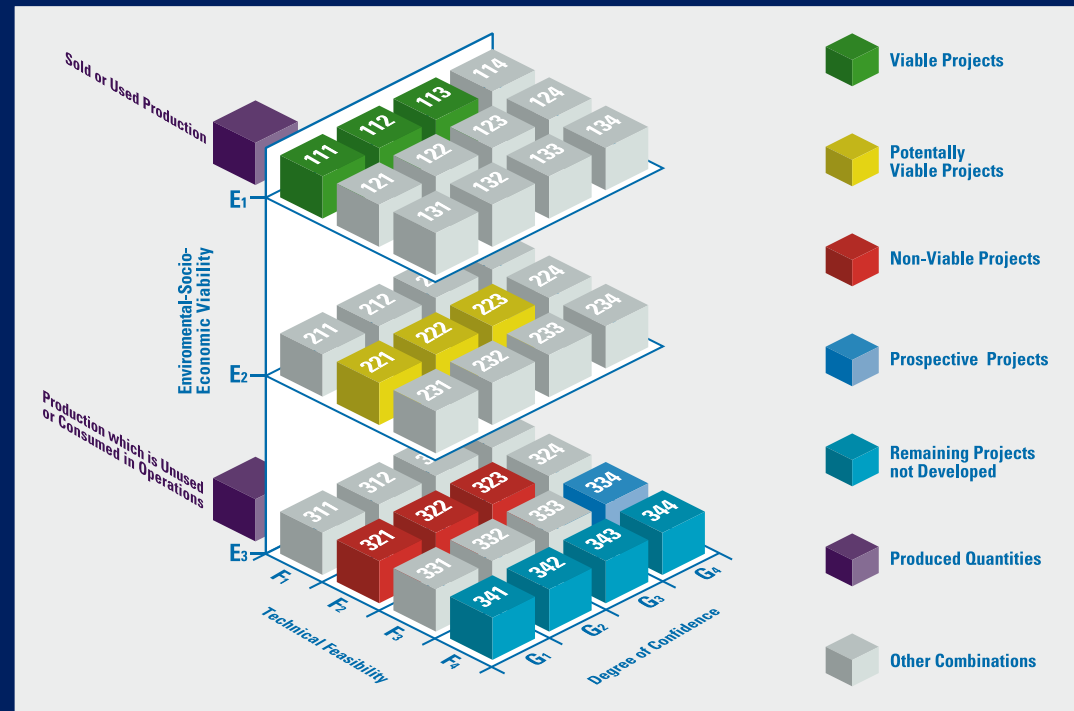
Source, quantity and quality of anthropogenic materials
(= *secondary raw materials*)

F-axis: Technical Feasibility

Need for new approaches to extract valuable materials

E-axis: Environmental-Socio-Economic Viability

How to assess the economic, environmental & social aspects



Application example for G-Axis (degree of confidence)

EEE in vehicles

Mass balance based on 100 vehicles:

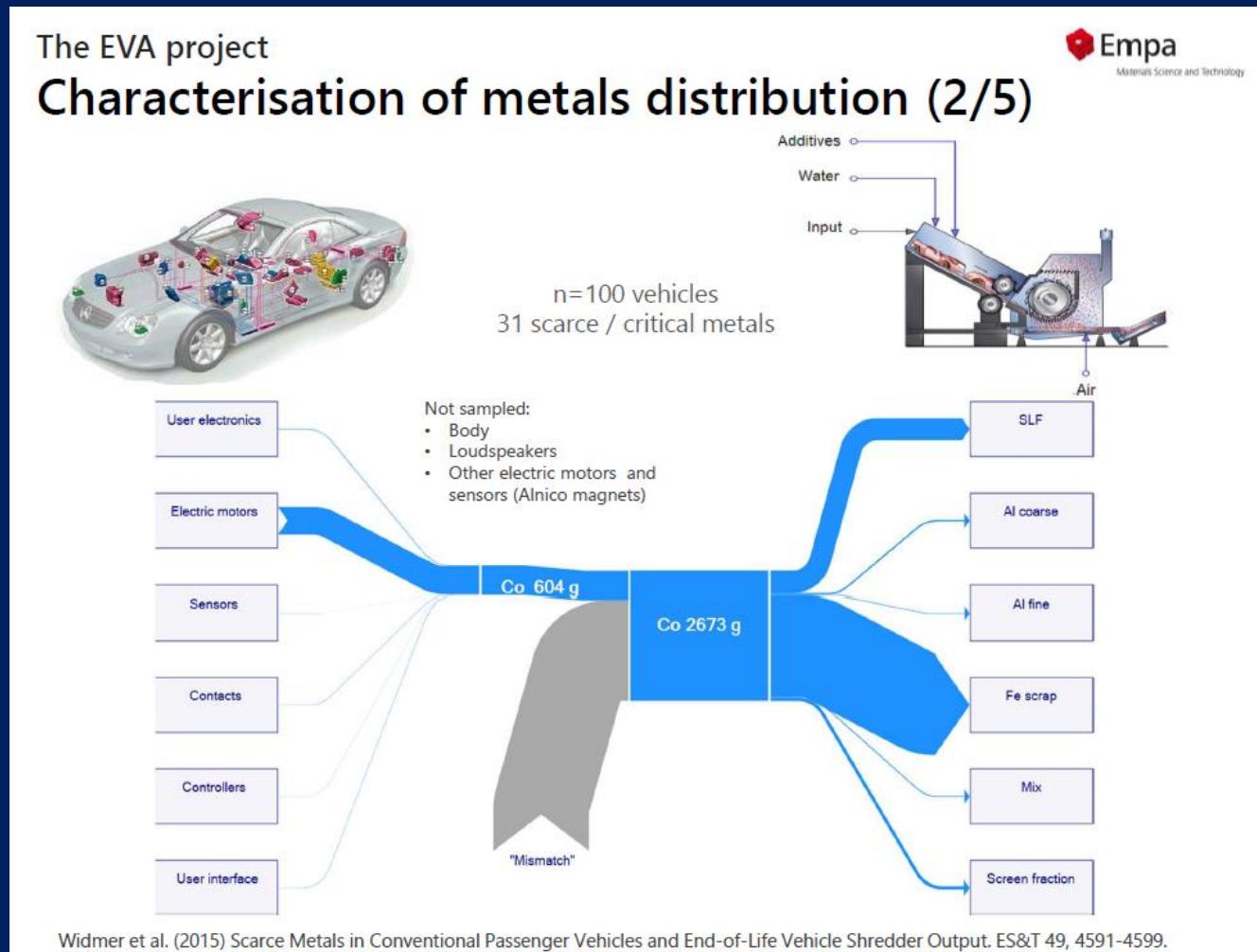
Two approaches for Co:

→ EE devices in vehicles

→ end-of-life vehicle

(ELV) shredder outputs

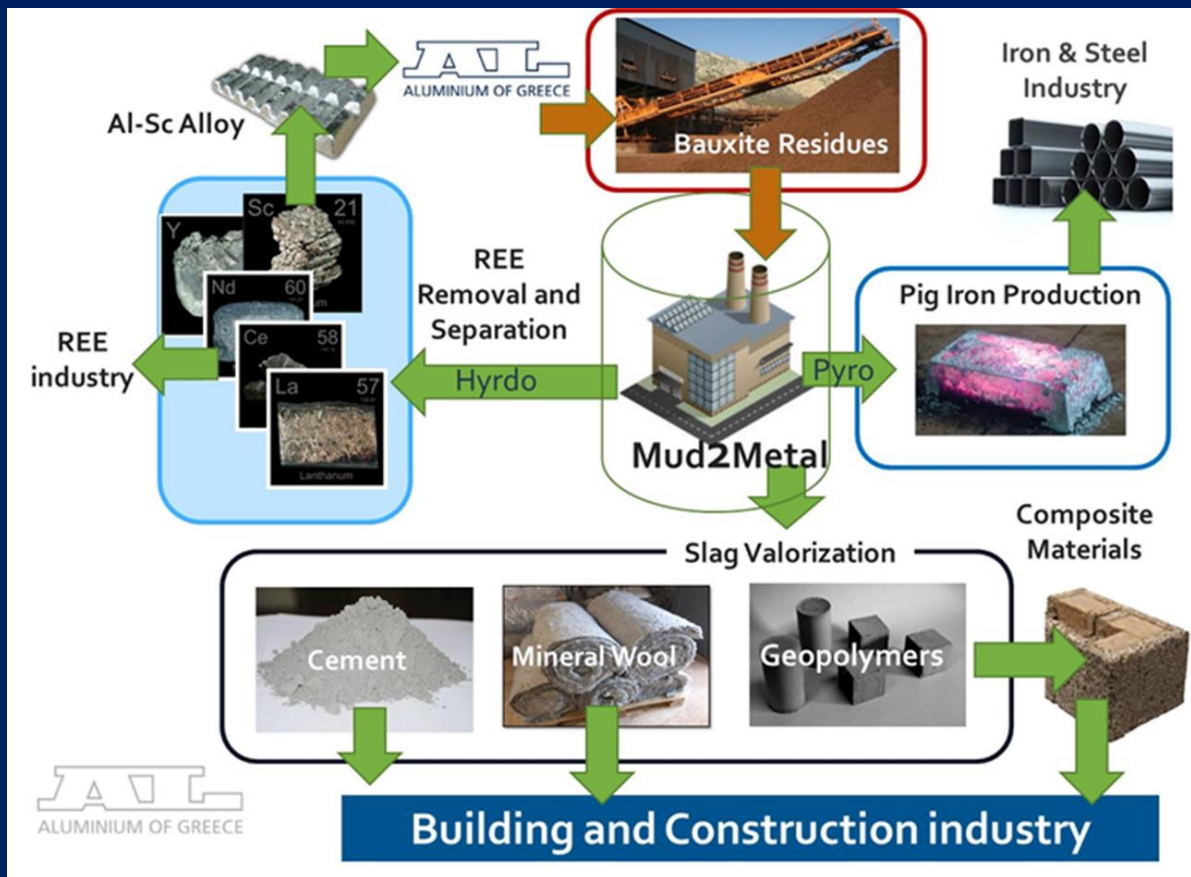
The study reveals for some elements a mismatch in accounting



Application example for F-Axis (technical feasibility)

Red mud

Mud2Metal - A new concept for a holistic exploitation of the bauxite residue



New approach to extract valuable materials from hazardous waste

→ New products & near zero-waste

→ financially viable technology

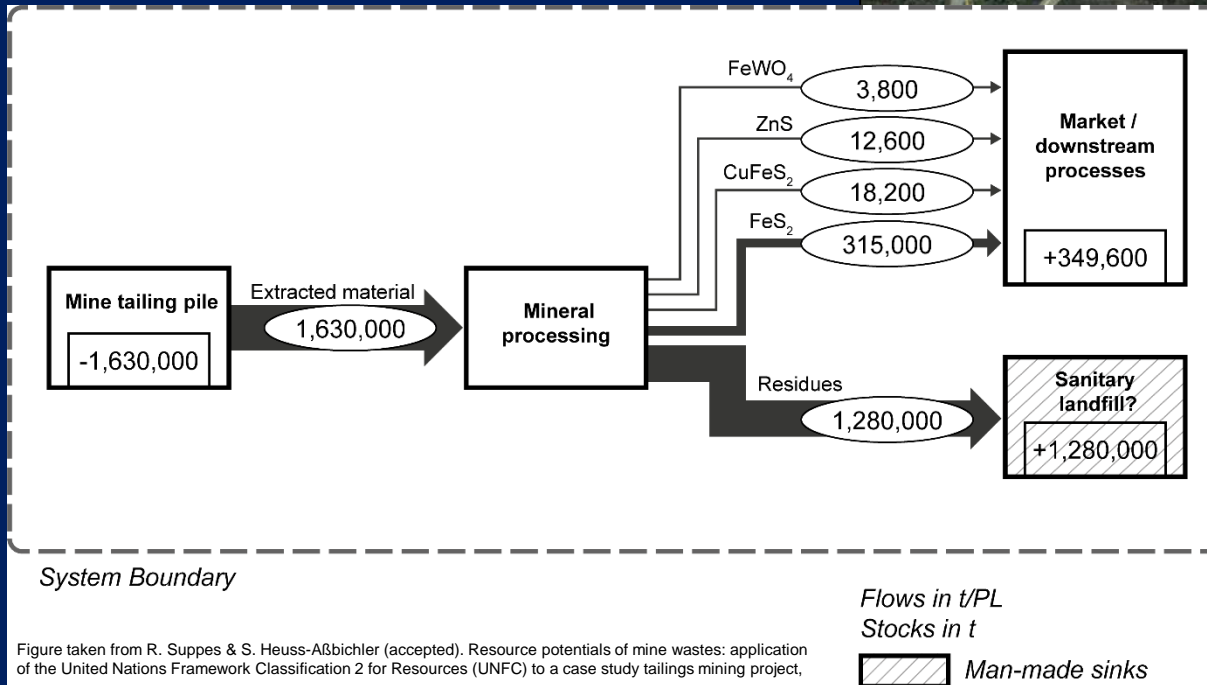
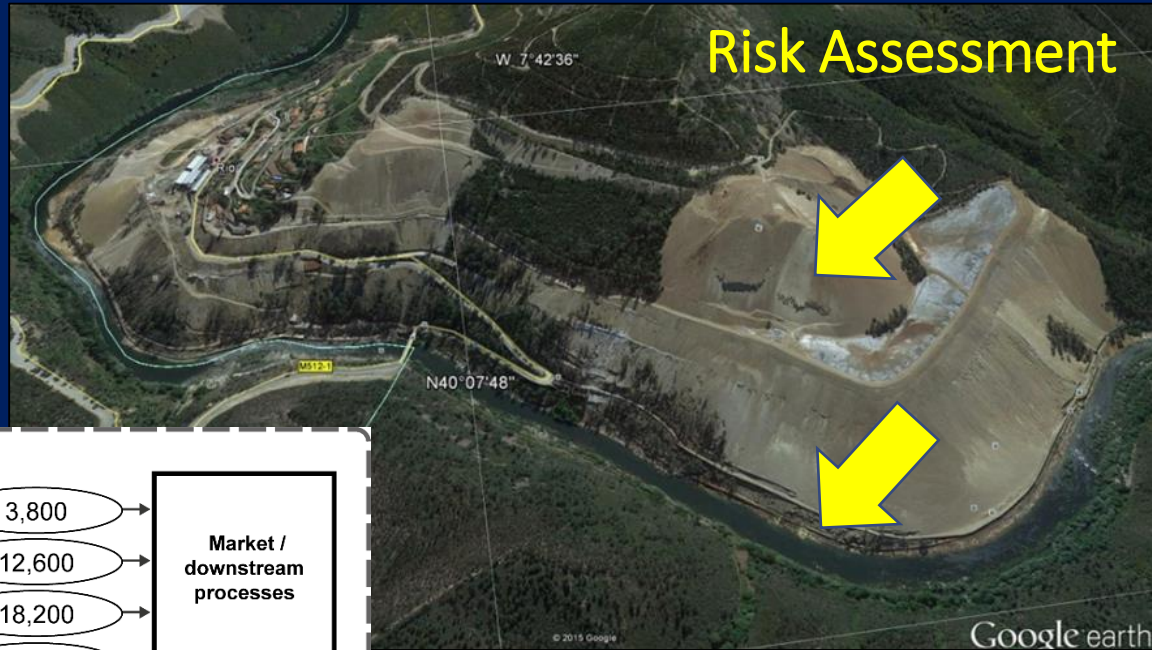
→ environmentally compatible process

Application example for E-Axis (Environmental-Socio-Economic Viability) Cabeço do Pião tailings deposit in Portugal

Environmental & social aspects:

Reduction of the risk for

- failure of tailings construction
- health and environment caused by contamination with As



Picture taken from <https://www.ltu.se/proj/Improve-Resource-Efficiency-and-Minimize-Environmental-Footprint-REMinE/Portugal?l=en>

Economic viability:

- highest value: W
- additional benefit: Cu, Zn

Outlook - 1

Anthropogenic Resources

UNFC is a powerful tool for a sustainable management of anthropogenic resources

- to communicate the viability of recovery projects (including environmental-socio-economic barriers)
- to deliver a decision-base for the industrial sector, investors and governments to develop recovery projects for the production of raw materials from anthropogenic sources
- to enable national resource reporting

Outlook - 2

Anthropogenic Resources

Several challenges need to be addressed

- **G-axis – degree of confidence:**

Systematic resource accounting beyond the project on local, regional, national and global scales to record resource exploitation potentials

- **F-axis – technical feasibility**

- Best available technologies
- Technology readiness

- **E-axis - environmental-social and economic viability**

- Factors to be considered when assessing the different aspects
- Europe-wide survey of the national legal situation regarding the utilization of raw materials from anthropogenic sources

Thank you



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