



Environmental and economic analyses to support the sustainable valorisation of sulphidic mine residues

A.Di Maria¹; M.Khoshkloo²; R.Berse³; B.Teigler³; A.Sand²; K.Van Acker¹

¹ KU Leuven –University of Leuven

² Boliden Mineral AB

³ DMT GmbH & Co. KG

<https://h2020-nemo.eu/>

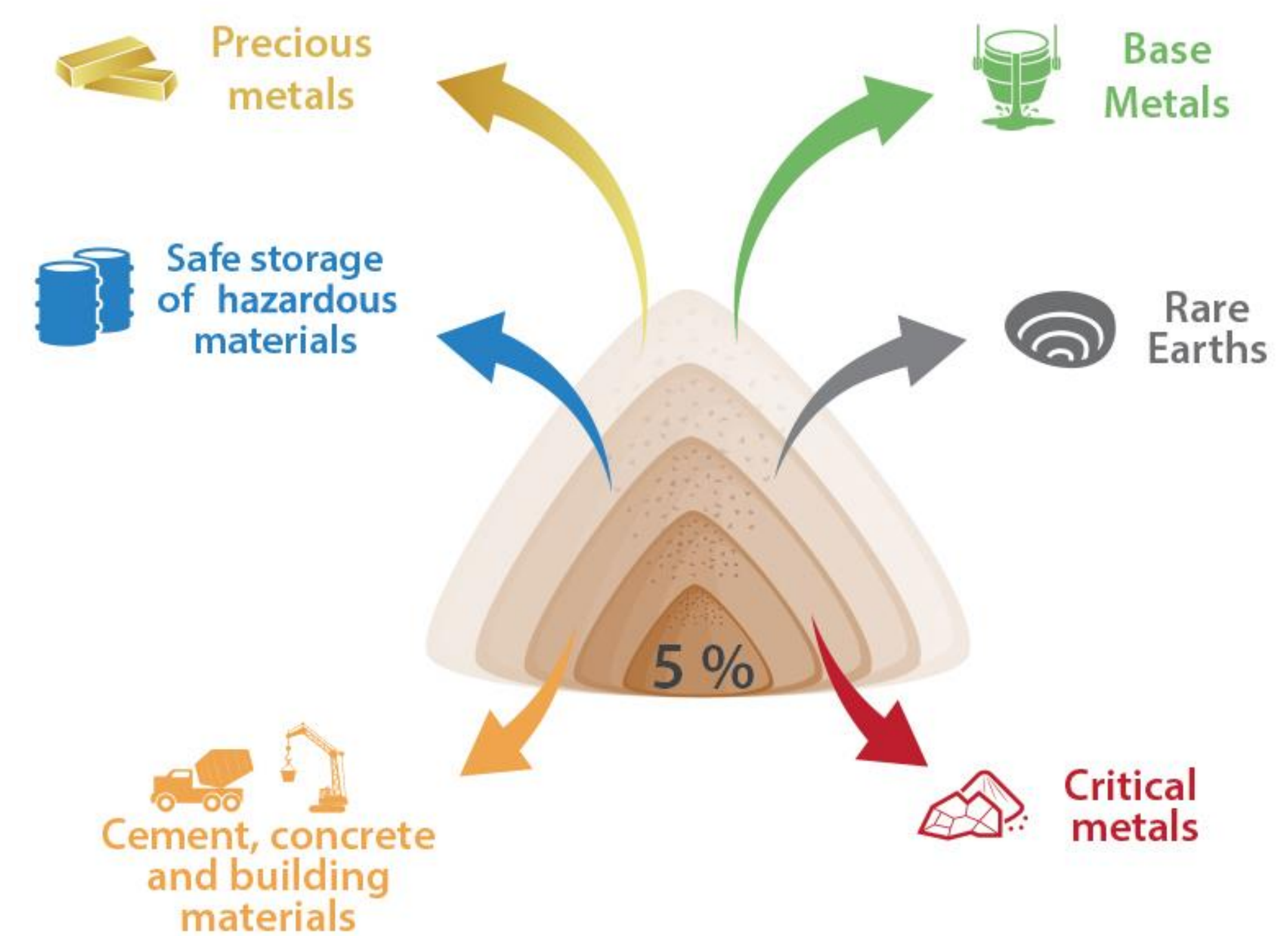
The NEMO Project

EU H2020 Innovation Action (SC5-14b) (TRL 5-8) with demonstration of the Near-zero-waste processing of sulphidic ores and waste.

Aim: 95% waste reduction in metal production flowsheets from sulphidic ores.

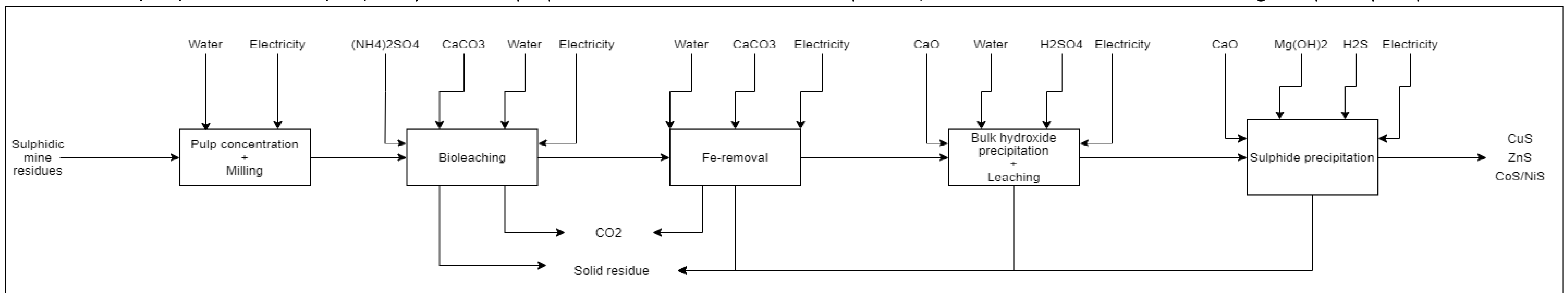
⇒ Recovery of valuable and critical metals

⇒ Cleaning the residual mineral matrix aiming for its valorization as cement, concrete and construction products or for safe final storage.



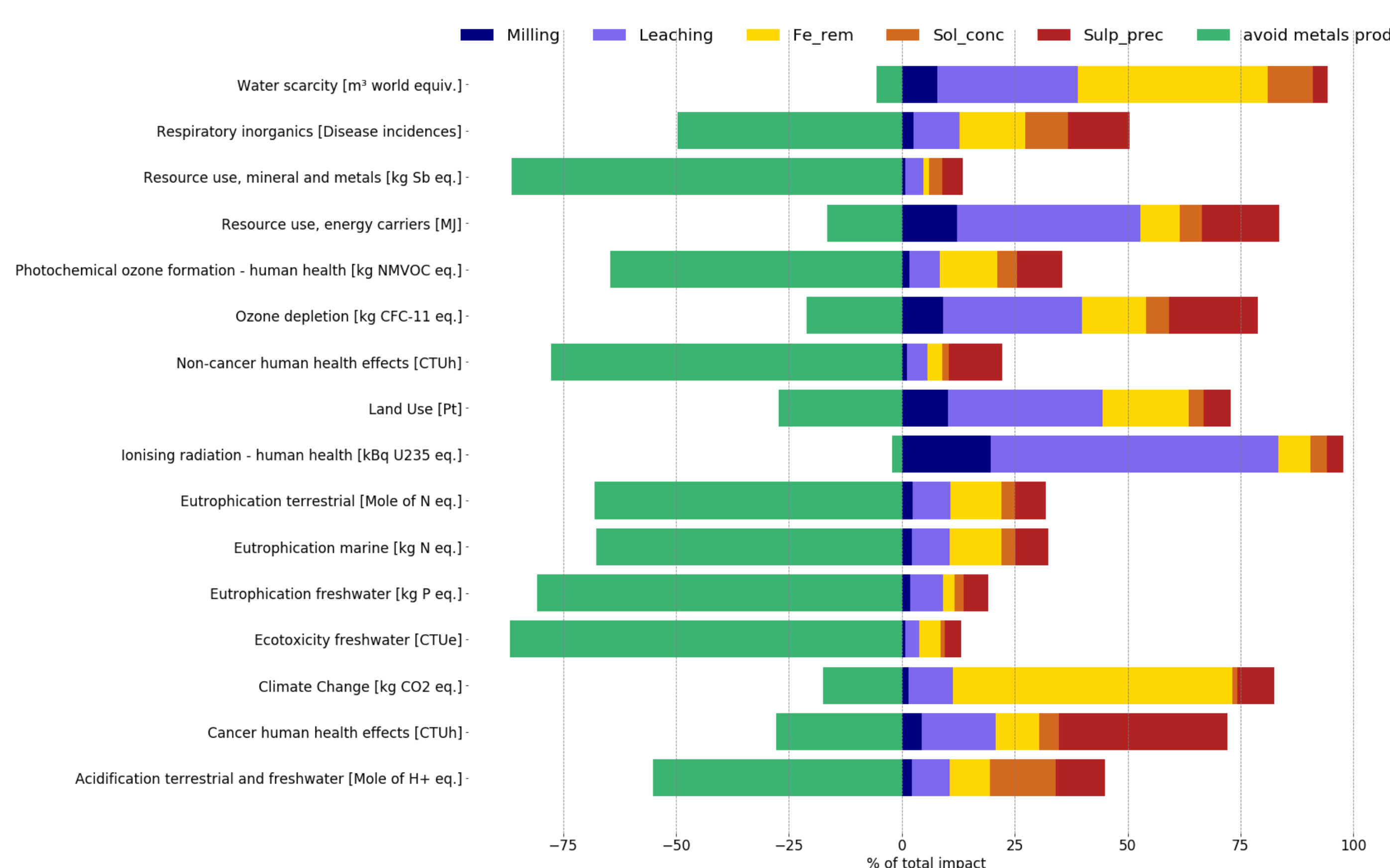
Goal of the study

Environmental (LCA) and economic (LCC) analyses of the proposed mine residues valorisation process, based on combination of bioleaching + sulphide precipitation



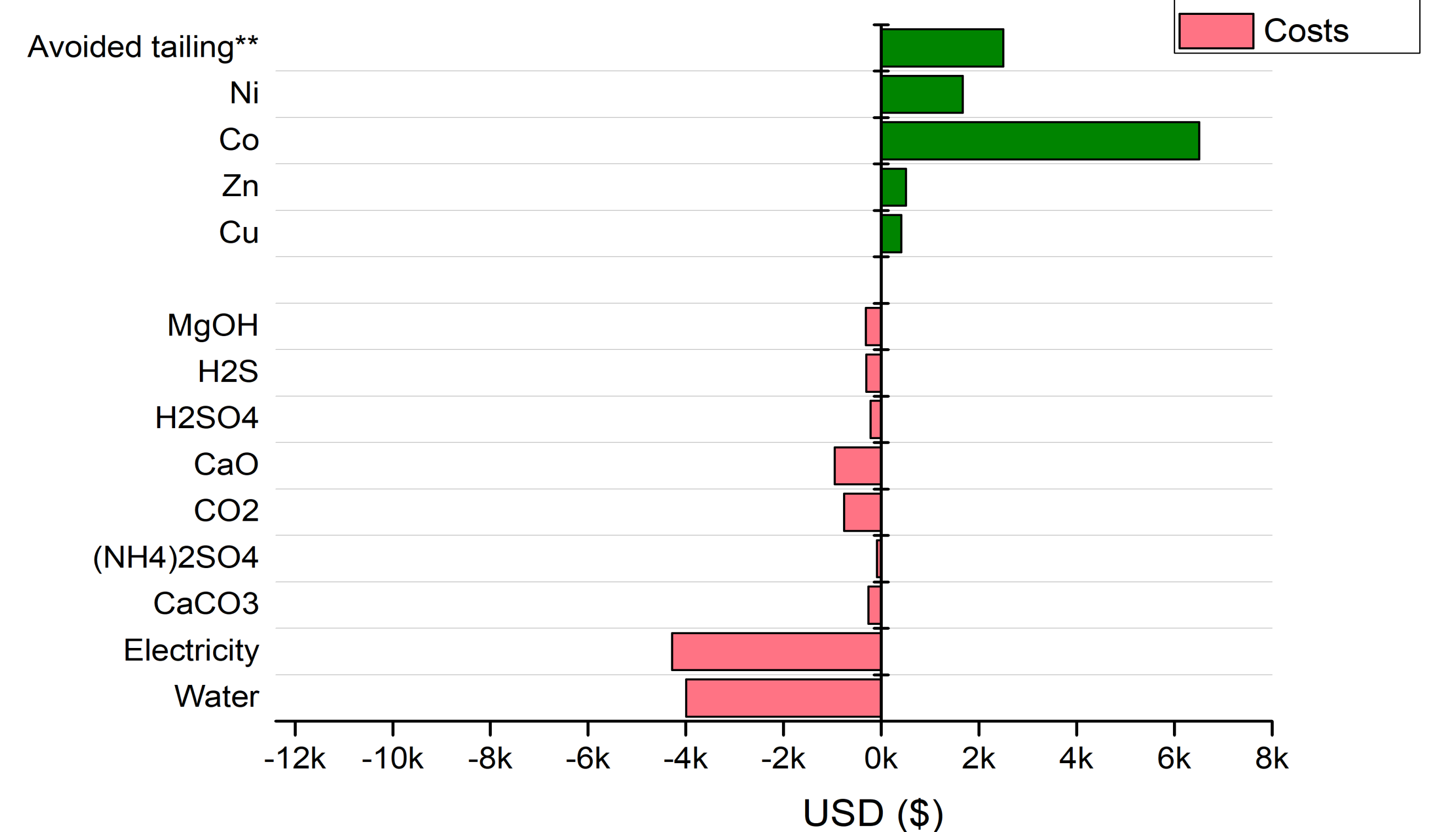
Proposed valorisation process for sulphidic mine residues

Environmental analysis



Economic analysis

Cost vs Revenues for t of metals recovered*



* 1 tonne of recovered metal = 11% CuS; 36% Zn; 34% CoS; 20% NiS

** This represents a future cost saving . 35.7 tonnes of mine residues must be treated to recover 1 ton of metals sulphides.

Conclusions

- Environmental analysis shows the benefits of substituting primary metals productions with secondary metals recovery from mine residues.
- Economic analysis shows the potential revenues from recovered metals, and it highlights the main costs that could hinder the economic viability of the whole process.

