

**Paper Proposal:**

**Global providers and consumers of metals – an analysis of trade patterns**

*For the special session “Quantifying patterns of resource use transformations and ecological distribution conflicts”*

**Summary**

Metals are strategically important resources within industrialized and industrializing societies and their extraction and processing is linked to environmental burdens and social conflicts. No other minerals are distributed as unevenly not only in terms of extraction but also consumption. We present material flow accounting data on the extraction, imports, and exports of metals between 1950 and 2010, tracing the changing global patterns and the role of individual countries therein. We identify a shift in metal extraction from the early industrialized to the emerging economies. Using waste rock, i.e., the non-metal portion of the extracted gross ore, as a proxy for environmental pressure associated with mining, we find that the shift in mining activities corresponds to a shift in environmental pressure. Based on the physical trade data, we discuss material expressions of (neo-)extractivism. We provide a biophysical perspective on metal extraction and trade and their contribution to the socio-environmental mining conflicts.

**Extended Abstract**

In the 60-year period between 1950 and 2010, minerals replaced biomass as the main type of material used. Mining has become a dominant activity through which human societies intervene into the environment. Metals are strategically important resources within industrialized and industrializing societies and their extraction and processing is linked to environmental burdens and social conflicts. No other minerals are distributed as unevenly not only in terms of extraction but also consumption. We present material flow accounting data on the extraction, imports, and exports of metals between 1950 and 2010, tracing the changing global patterns and the role of individual countries therein. We identify a shift in metal extraction from the early industrialized to the emerging economies. Using waste rock, i.e., the non-metal portion of the extracted gross ore, as a proxy for environmental pressure associated with mining, we find that the shift in mining activities corresponds to a shift in environmental pressure. Based on the physical trade data, we are able to identify that some of the major global suppliers of primary metal commodities are also major importers of secondary metal products. We discuss this pattern as the material expression of (neo-)extractivism. We provide a biophysical perspective on metal extraction and trade and their contribution to the socio-environmental mining conflicts.