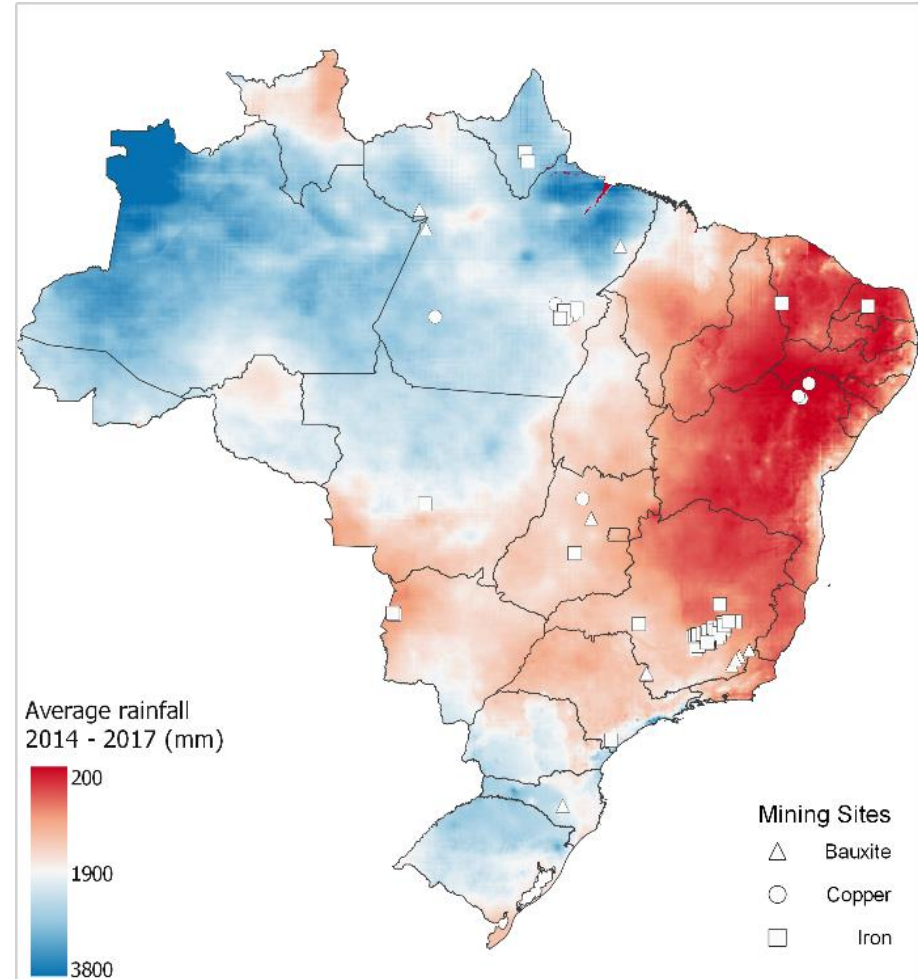# Estimating water input in the mining industry in Brazil

Moura, Agnaldo; Lutter, Stephan; Siefert, Cesar Augusto Crovador; Netto, Nicolas Dombrowski; Sena Nascimento, José Antônio; Castro, Fernando
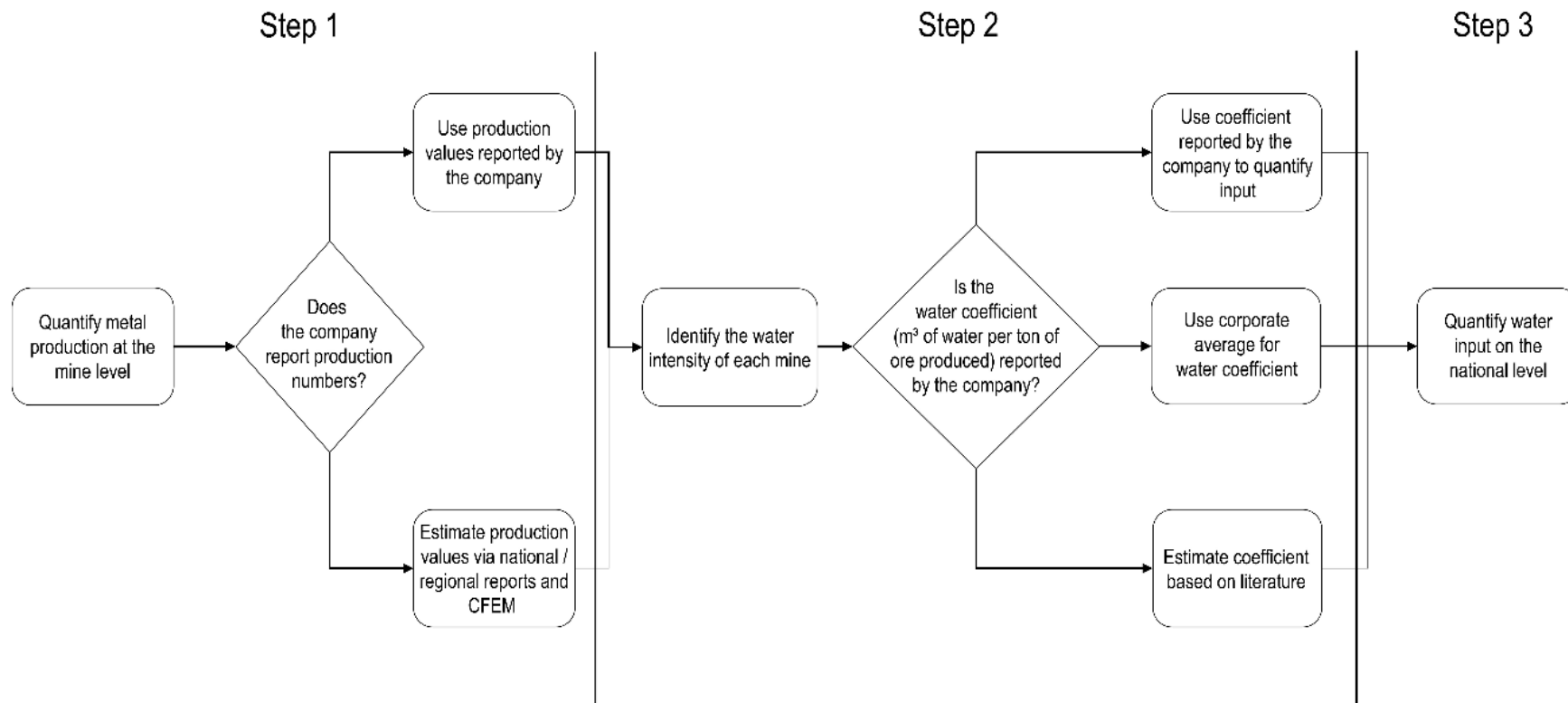
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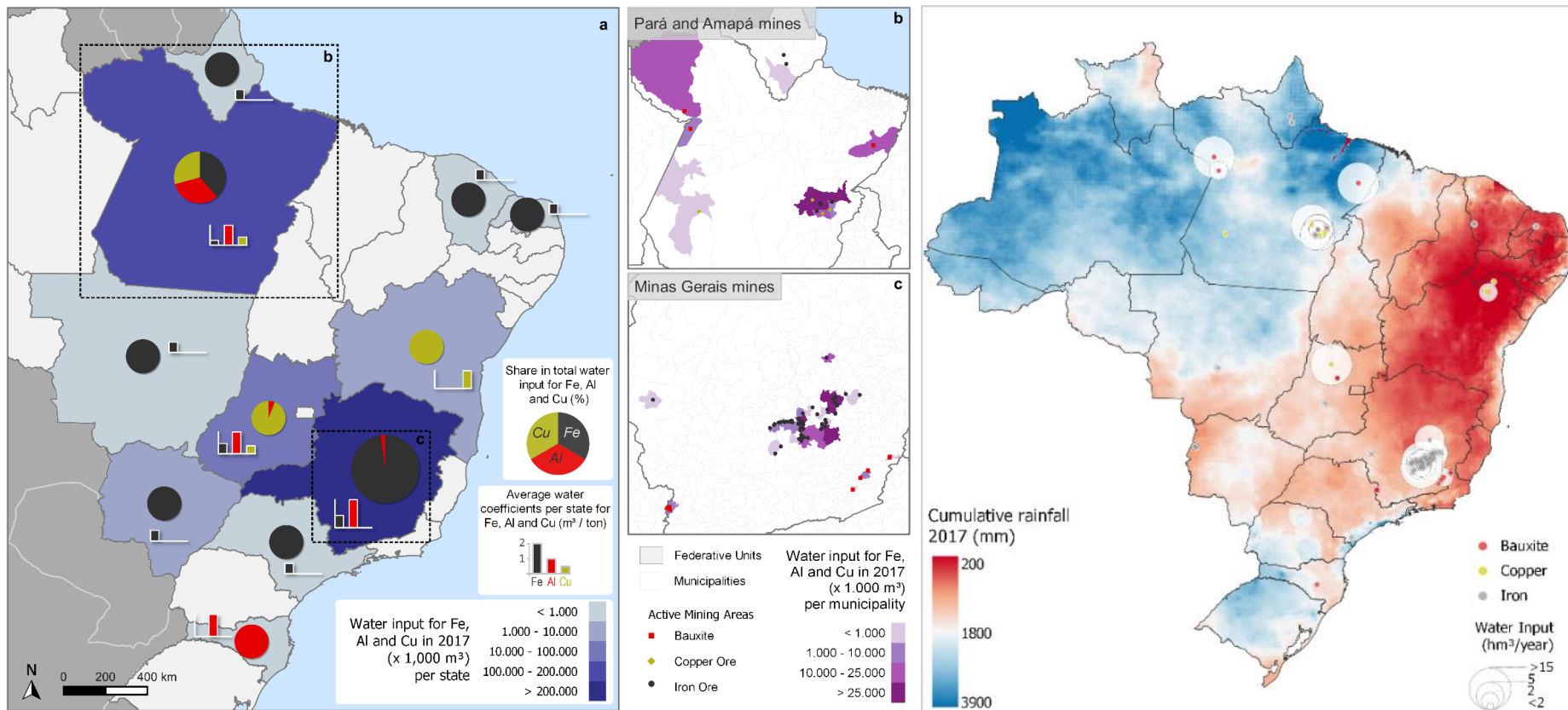
Background & objectives of the study

- Significant role of metal mining in Brazilian economy since colonial times

- Mining is a particularly water-intensive activity

- Rapid increase in extraction brings along pressures on local water resources

- Site-specific data on water input and management are scarce

- Propose a methodology for estimating water input in mining at high geographical resolution

- Focus on three key metals: iron, aluminum (i.e. bauxite ore), and copper

- Derive water input coefficients from company reports, governmental sources and the literature

Average rainfall 2014 - 2017 (mm)

200

1900

3800

Mining Sites
△ Bauxite
○ Copper
□ Iron

Results

Main take-aways

- Water inputs for bauxite, copper, and iron ore mining decreased by 15% from 2014 to 2017.

- Most water was appropriated in the North (Pará state) and Southeast (Minas Gerais) for iron, North (Pará) for aluminum, and North (Pará) and Central West (Goiás) for copper.

- Especially in the Southeast large water input is needed in a setting of reduced rainfall.

- Water input is strongly dependent on local rainfall, process-requirements (e.g. wet/dry tailings), recycling activities.

- Site-specific data on different types of water flows (input, consumption, return-flows, recycling) is still scarce.

- Mine-specific research could provide more insight in meaningfulness of generalized approach for large number of mines.

- Better application of accounting standards would improve data availability and help managing water in a setting of water scarcity or abundance.

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