

Sources of Conflict

Environmental Health and Natural Resources

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• INCT-ACQUA

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INCT-ACQUA Network

The Mineral Sector in Brazil



We are here

PARA

MINAS GERAIS

8400 mines
Mineral production 4-5 % GNP
10 % value Brazil's exports
MG 53% Me ores ; 2nd most populated
(IBRAM, 2015)

Recent projects
INCT-Acqua

Sources of conflict: potential impacts on environment quality

Stage	Potential impacts/risks
Mining	Landscape Water – quality and availability Aquatic ecosystems Noise and vibration
Mineral Processing and Metallurgy.	From emissions: aqueous, air and solids



Sources of conflict: potential impacts on environment quality

Stage	Potential impacts/risks
Air particulates – mining, transportation	Air quality
Waste rock and Tailings disposal	Landscape Soil and water contamination. Acid mine/rock drainage Risks of collapse – minor to catastrophic



A combination of large scale mining operations, urban expansion and climate change create significant pressures on the natural resources

**How to harmonize the mineral sector's activities
with environmental quality and social
development?**

Ouro Preto, MG

Sound and reliable information on natural resources should be available

Case Study 1:

Alto Paraopeba one of the fastest-growing area in the “Iron Quadrangle”, MG.

The state holds 3.5% of the total Brazilian freshwater (~12% world freshwater).

Severe drought. **Water discharge has decreased to 78% of the expected values since 2007.**

What is the contribution of mining?

Gasparon et al., 2016

Sound and reliable information on natural resources should be available

Water governance:

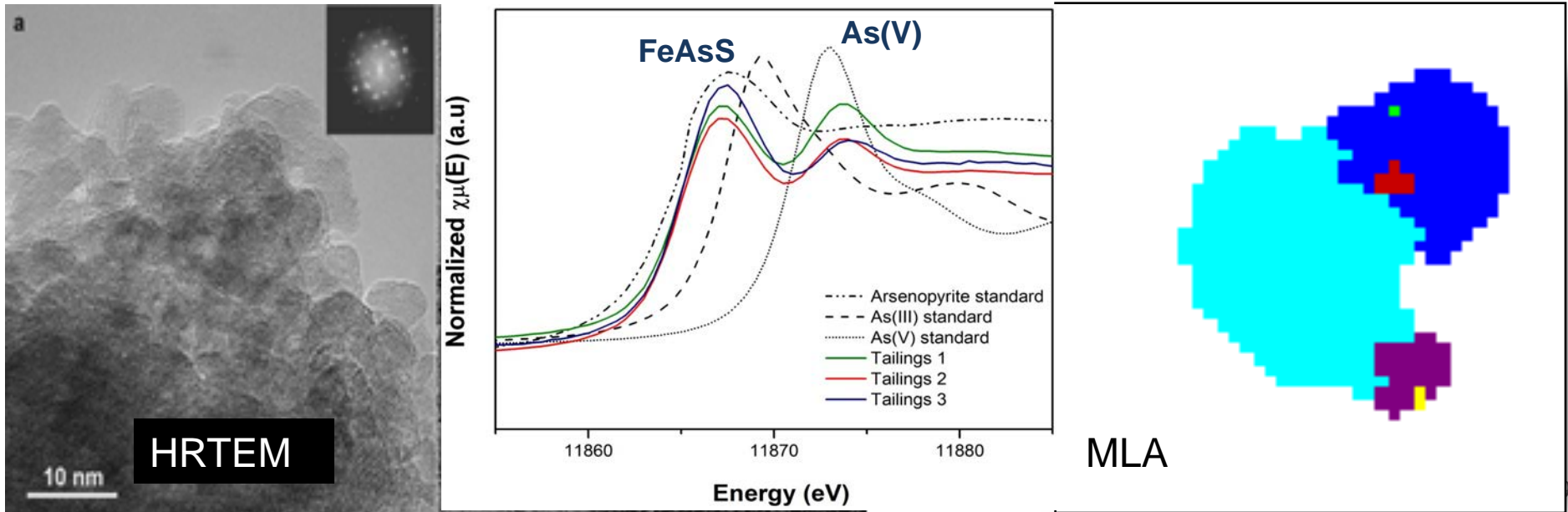
- improved water accounting, with extended network of accurate and reliable monitoring data
- detailed knowledge of the region's hydrology and hydrogeology, with assessment of overlapping effects and connectivity
- innovative approaches to water use, re-use, recycling and conservation
- a redefinition of the "value" of water, by taking into consideration all the services water delivers

Sound and reliable information on natural resources should be available

Soil and Air :

- Total vs. Bioaccessible concentration.
- Identification of the “source” of particulate matter and Speciation.

Chemical nature, oxidation state, association with other constituents



Final Considerations

Access to information has a key role to ensure stakeholders engagement and a mature dialog.

- Education to all levels is needed
- Capacity building - regulators and environmental agencies
- More effective communication.
- Who should play the role of mediator?



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