

SEG 2023 Conference: Resourcing the Green Transition

Sustainable Futures for Small-Scale Gold Mining Communities: Mapping the Socio-Economic, Environmental, and Geological Baseline for Peixoto De Azevedo, MT, Brazil

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Researchers from the Universities of Campinas (Brazil) and Cardiff (UK) held an engagement workshop in Peixoto de Azevedo, MT, funded by the Global Challenges Research Fund (GCRF). The aim was to build a working relationship with stakeholders involved in the region's artisanal and small-scale gold mining (ASGM) to co-produce research targets for more sustainable mining practices. Stakeholders came from a wide background, including "garimpeiros" from cooperatives, Ministry of Mines and Energy representatives, junior mining companies, indigenous communities, state and local government members, social organizations, and local institutions academics. The thematic groups discussed geology, environment, economy, social science, and education. The following key points are central to sustainable livelihoods on ASGM in Peixoto: (a) high-quality education and training; (b) local economy diversification, with mining remaining as a vital component; (c) low mining environmental impact; and (d) regulatory environment and social justice improvement. These outcomes provided starting points to develop the second project:

- 1) Is it possible to farm and produce contaminant-free products in former gold mining areas?
- 2) What are the environmental impacts of ASGM on soil and water?
- 3) What model of gold mining certification is the most appropriate for the Peixoto cooperatives?
- 4) Can new technology replace Hg-amalgamation?
- 5) How can workplace safety practices be implemented to increase well-being?

The group won the second GCRF Project intending to work with stakeholders in Peixoto to implement new models for ASGM sustainability appropriate to Brazil and relevant to global ASGM sustainability challenges. We are developing the following objectives: (a) map stakeholder interactions within and around mining; (b) explore stakeholders' attitudes toward sustainability and requirements for gold certification; and (c) implement phytoremediation in contaminated areas and test feasibility of Hg substitution. We believe that only community-company-university co-creation programs will effectively meet the community's real needs for sustainable mining in Brazil and elsewhere.