

Adapting to climate change in the context of mining: How to secure community resilience

Policy brief

November 2021

Authors:

Maria-Therese Gustafsson
Isabella Strindevall



Stockholm
University

“If we don't have water available for the communities and we don't meet our commitments, the operation will shut down. Just like that. I mean water is as important as gold.”
Interview with a representative for a mining company

Summary

Mining operations are extremely sensitive to climate-related risks, expected to become more severe under a changing climate. This policy brief outlines the key findings from a study on private adaptation strategies in the mining industry. Our findings reveal that mining companies mainly address climate risks from the departure of building operational resilience, whereas community-oriented responses are lagging behind. Integrating community risks and adaptation needs in formal risk management frameworks is critical to foster mutual co-benefits and community resilience.

Key messages

- Private adaptation initiatives have focused on climate impacts on business operations, whereas local communities are rarely considered.
- The push for private adaptation is mainly driven by investor requirements.
- There is an opportunity to strengthen community-oriented responses in relation to water governance.

The mining sector is critically important for the transition towards a low-carbon economy and the fulfilment of the UN 2030 Agenda. To meet expected rise in demand for clean energy technologies, the production of raw materials will need to be ramped up significantly in the coming years. At the same time, mining is associated with pressing environmental and social challenges in extraction sites, and is a significant driver of forest cover loss and greenhouse gas emissions.¹ The mining sector is, moreover, extremely sensitive to different climate-related risks. Increasingly disruptive weather events may damage infrastructure and rising temperatures brings new challenges to mine closure and land reclamation, with potentially adverse impacts to surrounding communities and environments.² Moreover, water availability is likely to decrease as a consequence of climate change. As mining requires large amount of water, mining companies need to find strategies to share sparse water resources with local communities. Thus, while mining is increasingly being presented as part of a solution to the climate crisis, mining could exacerbate climate vulnerability in the places of mineral extraction. This policy brief summarizes key insights from our research on private adaptation strategies in the mining industry. First, we describe how the 37 largest global mining companies have addressed climate risks, and identify important shortcoming of such responses. We then reflect upon possible entry points for strengthening community resilience in the context of mining.

Mapping private climate adaptation initiatives

Large institutional investors are increasingly demanding companies to disclose information about their exposure to, impacts on, and responses to climate risks. Mining companies have started to address climate risks by adopting *institutional, infrastructural* and *community-oriented* responses. Institutional responses refer to the integration of climate risks in existing water- and risk management frameworks. Infrastructural responses refer to investments to adapt technology or infrastructure to climate risks, and community-oriented responses refer to initiatives that primarily or partially aim at enhancing the resilience of mining-affected communities. Our analysis reveals that institutional responses are the most common, with just over half of the companies having integrated climate risks in water- and risk management frameworks. Infrastructural responses follow as a close second, with 43 percent of companies reporting on having adjusted their technology or infrastructure to cope with climate risks. Yet, companies typically have a technical approach to climate adaptation, and describe investments in various technologies for coping with climate stress. As a technical issue, climate change is mainly addressed by engineers at the environmental units, rather than the community-relations units.

Most adaptation initiatives are focused on building business resilience, and only 26% of the companies have engaged in initiatives that seek to enhance the resilience of local communities. Such initiatives can, for instance, aim to support communities to develop agricultural practices suited to climate vulnerability and change, setting up irrigation systems or water storage infrastructure to enable communities' continued access to water. To ensure that mining companies' adaptation strategies do not undermine community resilience, there is a need to assess both companies' and host communities' exposure to climate risks. The International Council on Mining and Metals has developed a tool for that allows companies to assess climate risk exposure of both companies and host communities. It would also be important to involve local communities in risk assessments and the development of adaptation interventions. However, our study shows that very few companies share information and involve local communities in addressing climate risks. In this situation, companies' adaptation strategies could potentially undermine community resilience. Integrating community vulnerability and adaptation needs in formal risk management frameworks, therefore, provides opportunities to bring mutual co-benefits and community resilience.

Strengthening community-oriented responses

To establish dialogues with local communities about climate risks, companies could build on existing participatory water governance initiatives. Climate-induced water scarcity represents a risk for both companies and communities. Unless companies ensure that sparse water resources are shared among water users, communities' livelihoods are put at risk and conflicts over access to scarce water resources will likely arise. As expressed by one representative for a major mining company: *"If we don't have water available for the communities and we don't meet our commitments, the operation will shut down. Just like that. I mean water is as important as gold."* Responding to these risks there is an emerging trend of looking at the whole water catchment, instead of limiting water management to an individual project. Catchment water stewardship is developed in collaboration with affected water users and may serve as an important entry point to enhance dialogue about climate-related risks in the context of mining.

While company-led participatory approaches are important, there are also examples of autonomous forms of participatory environmental monitoring (PEM) that are likely to play an even more important role in enabling local communities to participate in a more meaningful way in company-led adaptation initiatives. In PEM, community members are involved in collecting and assessing information about their adjacent environment, and when designed and implemented by community members, PEM have fostered trust, enhanced transparency and accountability, and ultimately mitigated environmental degradation associated with mining.³ Moreover, PEM could increase the awareness of climate vulnerability in the context of mining, and generate alternative knowledge that reflects communities' needs and interests in relation to such risks. This could potentially contribute to mitigate trade-offs between business and community resilience, and promote local sustainability.

Funding: This work was supported by the Glocalizing Climate Governance (GlocalClim) project, funded by Mistra Geopolitics, and by the Swedish International Development Agency, Sida.

References

1. Bebbington, A.J. et al. (2018). Resource extraction and infrastructure threaten forest cover and community rights. *Proceedings of the National Academy of Sciences*, 115(52), 13164-13173.
2. Rüttinger, L., & Sharma, V. (2016). *Climate change and Mining: a foreign policy perspective*. Adelphi: Berlin, Germany
3. Pareja, C., Xavier, A., & Daitch, S. (2019). *Participatory environmental monitoring committees in mining contexts: lessons from nine case studies in four Latin American countries*. United Nations Development Programme, New York.