

Research Question SEM-01
SEM-01 Knowledge Inventory and Literature Review of Risk Perceptions and Concerns of Citizens Regarding Mining Activities

Objective

Compile and critically analyse existing knowledge (i.e. published research and grey literature) on citizens' risk perspectives of various mining activities as well as the societal impacts. This includes studies on risk assessment, health impacts, and social concerns. This project should result in a report and includes a framework that will further define the research agenda of SEM which aligns with policy questions and citizens' concerns. This framework will be discussed with policy makers and citizens.

State of the art, background

Recent scientific studies have advanced our understanding of risk beyond traditional technical assessments by incorporating social, psychological, and governance dimensions. Foundational work by Slovic and colleagues (2016) has long shown that public risk perception is influenced not only by statistical probabilities of a negative event, but also by qualitative factors such as dread, uncertainty, and trust in institutions. These studies highlight that technical risk assessments, while necessary, are unlikely to fully capture the range of concerns expressed by affected communities (Arning et al, 2024).

The SEM research program draws on frameworks discussed in contemporary literature—including insights from Sairinen et al (2021) and Vanclay et al. (2015), which emphasize that risks associated with mining operations are multifaceted. For instance, technical risks such as seismic activity, leakage, and explosions are interwoven with socio-economic and psychological factors. Citizens' evaluations of these risks involve cognitive, affective, and moral dimensions that often extend beyond measurable physical impacts. These evaluations are shaped by experiences of fairness, procedural justice, and historical trust (or mistrust) in governance.

The program distinguishes between direct effects—such as physical damage and health hazards—and indirect effects, including psychological stress and social disruptions arising from inadequate governance (e.g., Stroebe et al. 2022; Dückers et al. 2023). Moreover, the literature on the social amplification of risk underscores how initial technical events can lead to broader social impacts (Kasperson et al., 2013). For example, even minor incidents may trigger heightened public concern, amplified by media coverage and community discourse, which in turn influences regulatory and policy responses. This perspective aligns with findings that the impact of risk communication depends on the (local) balance in quantitative risk information and qualitative narratives that acknowledge the lived experiences of citizens.

Research Question

What is the current state of existing knowledge (i.e. published research and grey literature) on citizens' risk perspectives of various mining activities as well as the societal impacts? What further research need to be done to support policy making regarding the societal aspects of mining?

Deliverables expected

Progress meeting, Progress presentation, Final Report(s),

Timeline

1. Literature research approach – 2 weeks (requires green light from SEM-panel)
2. Literature search (including grey literature) – 1 month
3. Approach for writing research report – 2 weeks (requires green light from SEM-panel)

4. Writing report (including management summary) – 2 months

Total expected time: 4 - 6 months

Expected use

To facilitate interdisciplinary research in the social effects of mining, a state of the art literature review is needed. This will enable the SEM-panel to further articulate its research agenda and align the research agenda with policy questions and citizens' concerns.

Expertise and tools preferred for the team

Social scientists with knowledge of risk perceptions and social impacts of environmental changes , as well as knowledge of related methodologies.

Quality assurance, Organisational and communication requirements

Green light is required for Literature research approach and approach for research report from the SEM-panel. There will be at least two meetings with the guidance commission (SEM-panel, KGG and SodM) at these key moments.

Remarks and Suggestions

See attached research strategy SEM-panel

References