



Protocol on Environmental Assessment of CRM extraction in environmentally protected areas

Deliverable D4.2

Balancing Critical Raw Materials' needs with environmental protection

This protocol provides a structured framework for evaluating the potential justification of extraction of Critical Raw Materials (CRMs) beneath environmentally protected areas, while carefully balancing societal resource needs with nature conservation.

Three-Tier Assessment Process

Policy-Level Evaluation: Assessment of CRM needs using the DPSIR (Drivers-Pressures-State-Impact-Response) framework to balance competing societal interests

Technical and Economic Feasibility: Evaluation of the mineral deposit through the UNFC (United Nations Framework Classification) to determine project viability

Site-Specific Environmental Impact: Detailed assessment of impacts on specific environmental and ecological values being protected

Technical solutions for minimal impact

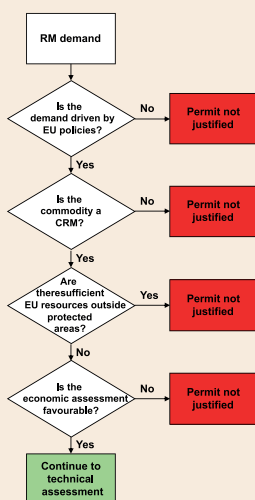
- Underground mining operations employing automation significantly reduce surface footprints
- Underground processing minimises material transport to the surface
- Precise drilling techniques reduce unwanted extraction
- Modern water management systems prevent excessive groundwater drawdown
- Paste backfilling methods reduce surface impacts and maintain geochemical stability

Overall, this protocol aims to resolve conflicts between resource extraction and environmental protection through transparent decision-making, emerging technologies, and comprehensive environmental safeguards

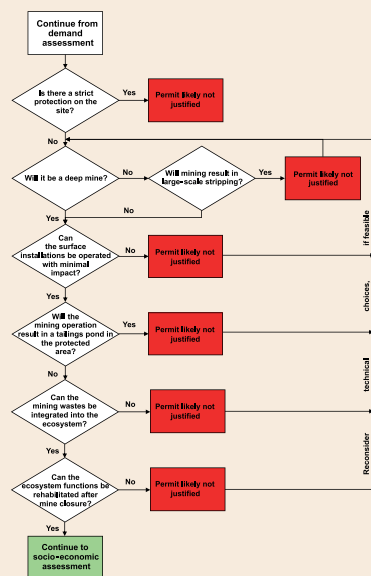
Implementation requirements

- Successful implementation demands:
- Rigorous initial assessment of environmental values to be protected
- Comprehensive monitoring systems for early detection of negative impacts
- Adaptive management capabilities to address unexpected issues
- Clear performance thresholds with defined trigger points
- Strong stakeholder engagement throughout all phases
- Long-term management commitment extending beyond mine closure

Decision scheme for elucidating policy-driven demand and project justification



Decision-scheme the technological assessment



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