



MMSA ESG Webinar Series  
The “E” in Environmental, Social and Governance

**Mine Waste: the Risk that Keeps on Giving**

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Patrick Williamson, QP, PG

MINING SERVICES

 **INTERA**

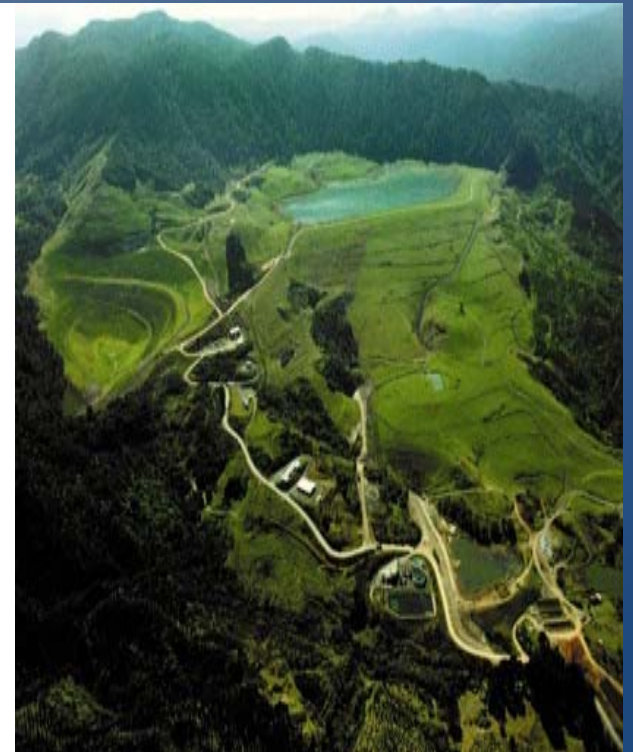




## Mine Waste Management - Past and Present

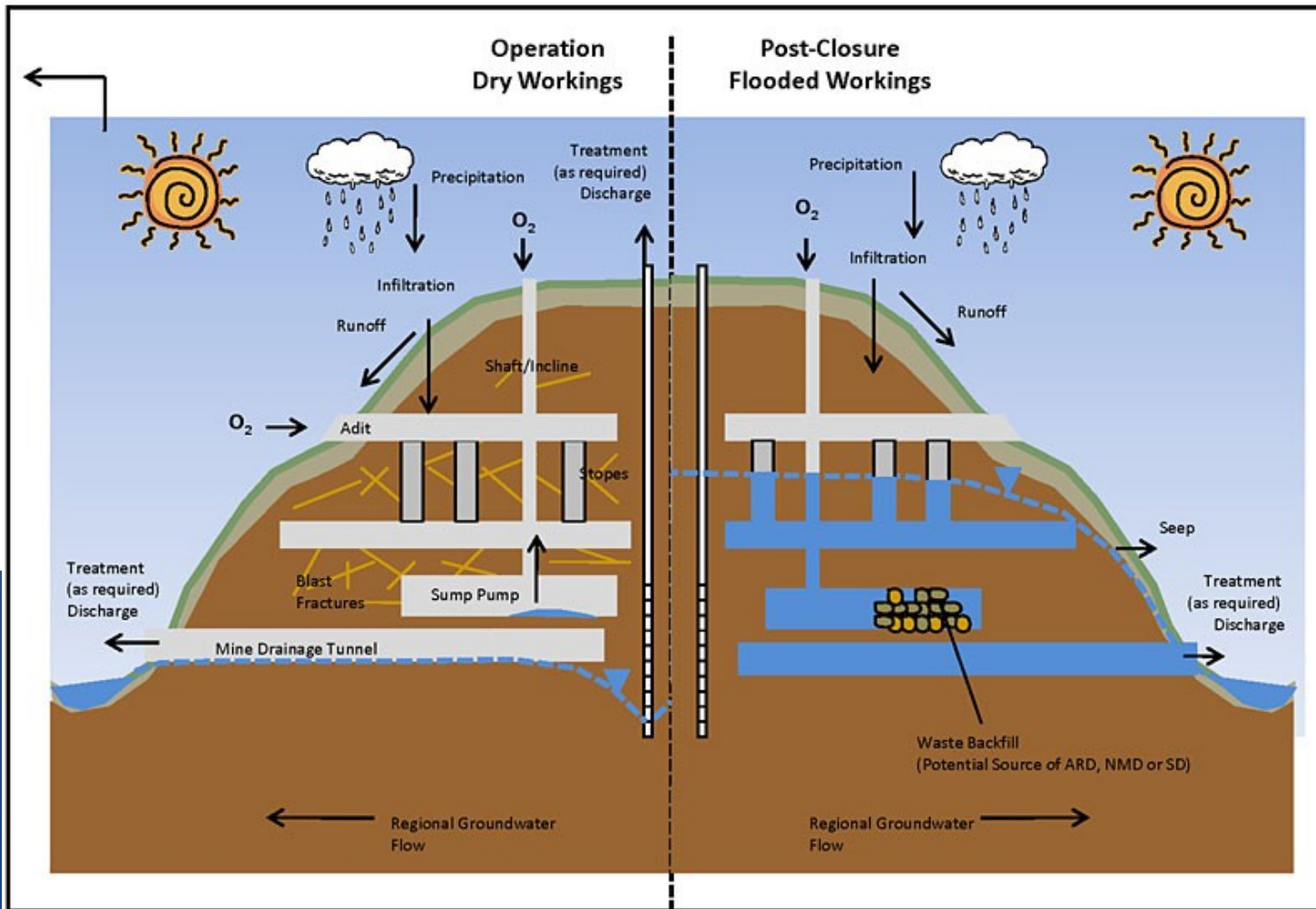
Acid Rock Drainage and Metal Leaching:

- Tailings
- Waste Rock Dumps
- Reactive Surfaces in Mine Working
- Ore
- Artisanal and Small-Scale Miners
- Exposed Mineralized Rock



# Mine Impacted Water

Pyrite + Air + Water = Acidity, Sulfides, and Metals



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# Geochemical Environmental Risk



## Impacts

- Water Quality
- Water Supply
- Ecological

## Cost

- Remediation
- Water Treatment
- Geotechnical Issues



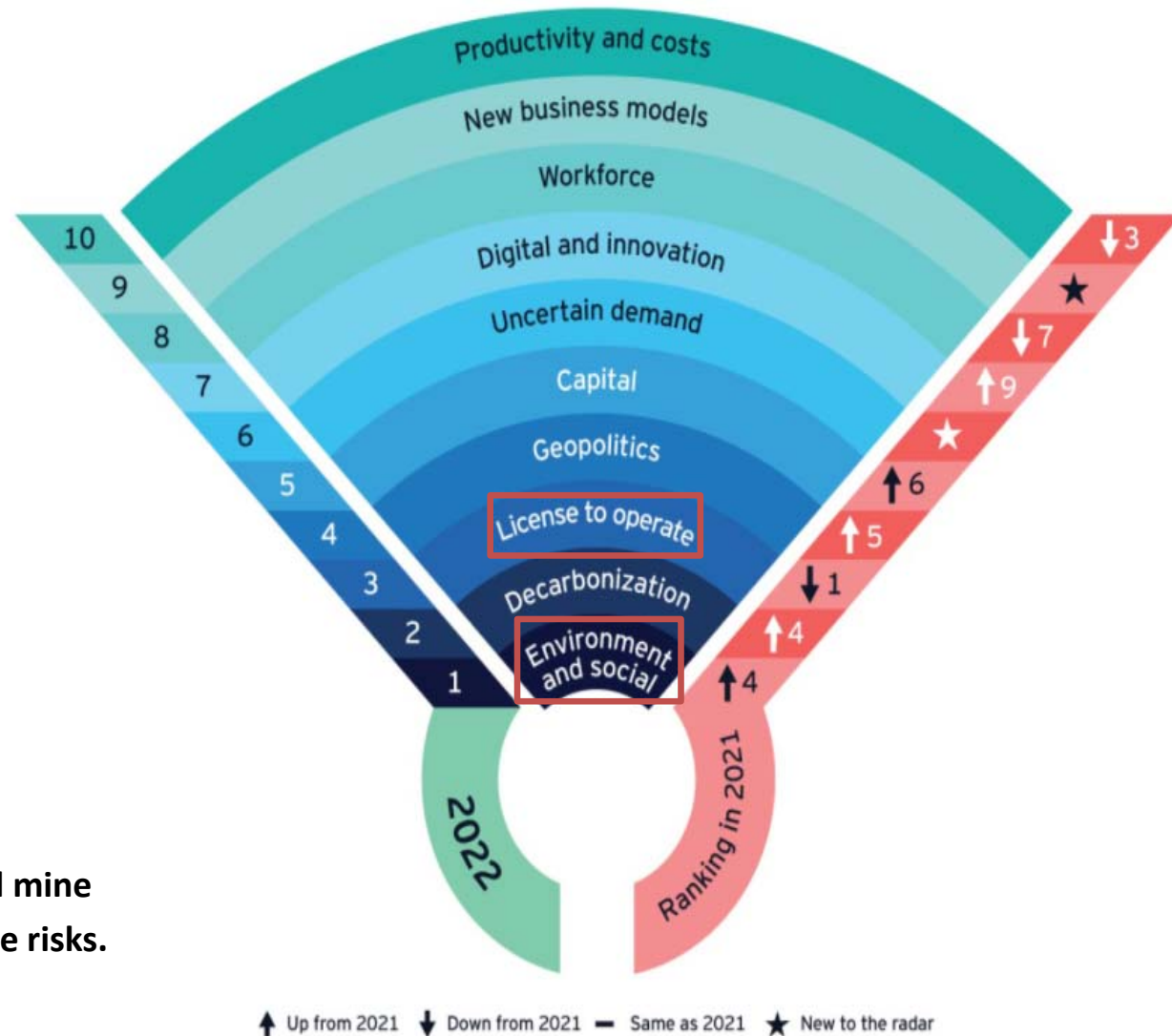


# Geochemical Mining Risks

## Types of Risk

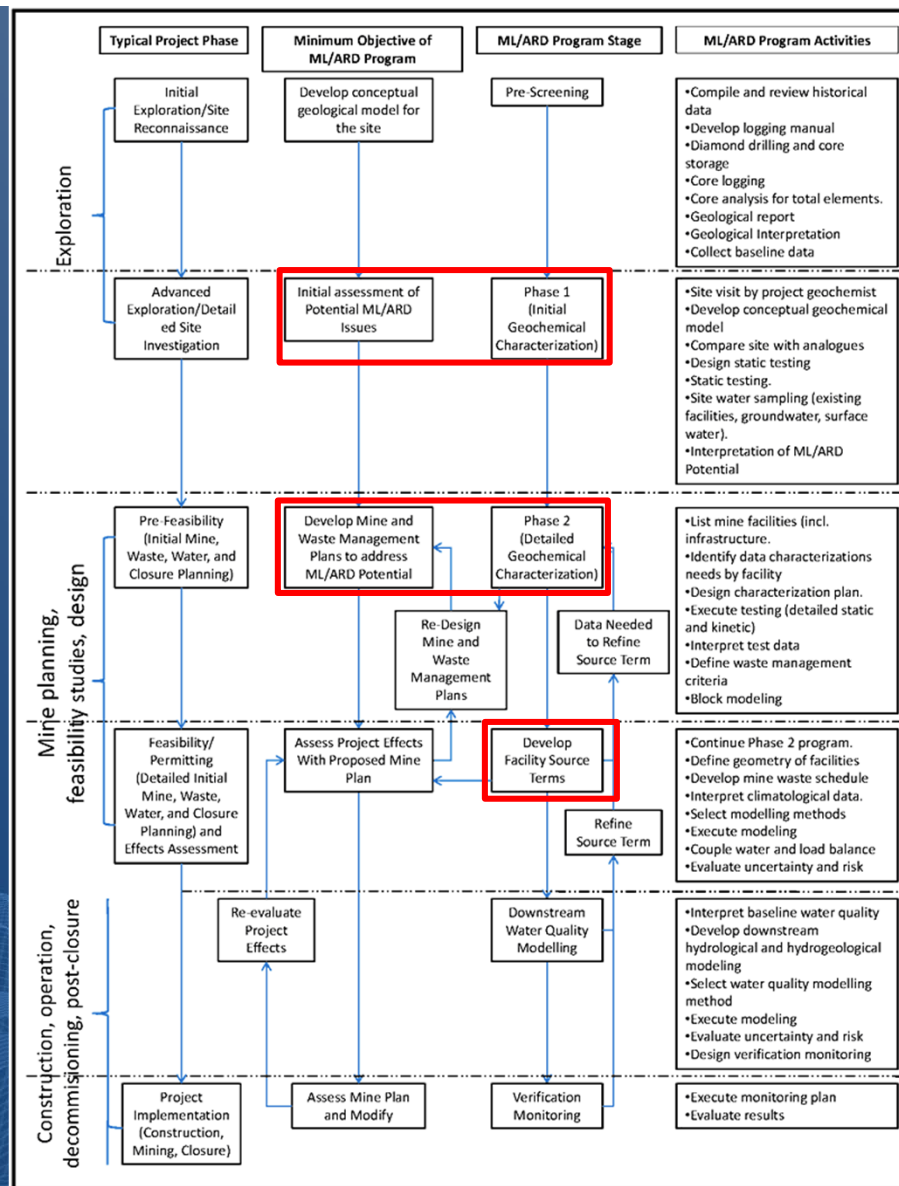
- Operational
- Financial
- Reputational
- Social License
- Environmental
- Regulatory

The geochemistry of mine waste and mine workings is a component of ALL these risks.



↑ Up from 2021 ↓ Down from 2021 — Same as 2021 ★ New to the radar

# Geochemical Characterization and Management 101



# Mining Towards Closure

- Starts with a thorough baseline (late exploration or PFS)
- Collect and analyze sufficient samples of major lithologies
- Develop a realistic closure plan and update it regularly
- Don't let operations put off closure activities

# Takeaways

- Start early
- Be thorough
- “Mine towards closure”
- Weak national requirements are dangerous: Use industry best practices
- Data and document management