



FRSKR

Water Sustainability in Mining

by Adam Cechetto

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Introduction

“Water is a precious shared resource with high social, cultural, environmental and economic value. It is a basic human right and a fundamental element of a healthy functioning ecosystem.”

- International Council on Mining & Minerals (ICMM)

Water is vital to the mining industry, with mining and processing operations requiring considerable volumes of water to operate. Regardless of where a mining project is located, it is highly likely that it will face challenges relating to water. Mining companies are facing growing risks to operations, regulations, reputation, and investor expectations related to water.

With an increased focus on protection of fresh-water resources, the mining industry has been working towards conservation and maximizing re-use. At a time of increasing importance for retaining social license to develop and operate projects, conserving and protecting shared water resources has become crucial for the mining industry and investors.

Responsible mining is a pivotal component to responding to climate change, and the demand for scarce resources globally is going to rise. At FROSKR, we understand the critical role our mining partners play in addressing the challenge to meet these demands with innovation and global action.

This thought piece speaks to the Waste Reduction aspect of BESTECH's [The Whole Mine document](#).



Water and Communities

Conflicts with local communities in relation to water can create operational, legal, financial, and reputational risks to a project, and ultimately to a proponent. Triggers for community conflict can include:

- Water scarcity;
- Water excess;
- Lack of access;
- Impacts on water quality; and,
- A general lack of trust.

With two-thirds of world's mining projects being in water scarce areas, communities living with legacy issues involving water contamination or availability due to mining activities are likely to fiercely defend against further impacts and new projects.

Listening to and asking questions of the local communities during the planning stage of the project may help with easing concerns with potential impacts to the local water sources, as well as provide alternatives for sourcing water for the project. An example of this is Freeport-McMoRan's Cerro Verde Mine in Peru, which uses recycled municipal wastewater as a water supply, as opposed to groundwater or other local sources.

While mining can be perceived as negatively contributing to water quality and quantity by communities, mining companies can make a significant positive contribution to providing safe, clean and adequate supplies of water to communities while still meeting production needs and goals.



Sustainability

Water sustainability goals have been set by several international organizations, such as the United Nations and the International Council on Mining & Metals (ICMM).

Numerous mining companies have set water sustainability goals and have undertaken programs to reduce their potential impact to water sources.

In speaking with Kirkland Lake Gold's Vice President - Environment, Mohammed Ali, it became very apparent that his organization appreciates the importance in managing water. "Water is an integral resource that we manage. Managing the sustainability of water at KL Gold includes looking at quality and quantity and must incorporate the regional context. Our focus at the Macassa Mine in Kirkland Lake, ON, is around water quality; whereas Fosterville Mine in Victoria, Australia is focused on availability/quantity; and the Detour Mine in northeastern Ontario is focused on water body protection. We have implemented water sustainability programs tailored to each of our operations to help us operate in a sustainable manner, with the ultimate goal to value and protect this shared resource."

Elsewhere in the sector, Vale is aiming for a reduction of 10% of fresh water collected and used in their process per produced ton by 2030. Newmont has set a goal of reducing overall water consumption by 5%, as well as reducing water intensity and increase recycle/reuse rates for 2020.

Innovation and new technologies, such as Artificial Intelligence, play an important role in helping mining companies optimize and reduce their water usage. These innovations and technologies will be the topic of a future white paper by FROSKR.

Take the Leap!

About FROSKR

From heavy manufacturing and mining to construction and municipal projects, our seamless consulting and technology solutions provide business stability and environmental sustainability.

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About the Author

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As Principal, Environmental Services, Adam is responsible for leading FROSKR's technical teams in the delivery of environmental services to our partners.

He has over 16 years of experience as an Environmental Scientist within the mineral exploration and mining industry. He holds a B.Sc. in Environmental Earth Science from Laurentian University and is a Registered Environmental Professional (EP) within Canada.

Adam is also a member of the Ontario Mining Association's (OMA) Environment Committee, President of the Ontario Chapter, and National Director of the Canadian Land Reclamation Association (CLRA), and Chair of the Program Advisory Committee for the Environmental Technician (EVTN) and Environmental Monitoring and Impact Assessment (EMPD) programs at Cambrian College.

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