FUTURE MINERALS FORUM

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FMF24 | The Opportunity to Become the Green Exchange

TACKLING THE CHALLENGE OF MINERALS TRACEABILITY

The energy transition has created increased downstream demand for transparency and assurances around the provenance of minerals. The minerals industry is striving to deliver on a promise of an adequate, affordable, and secure supply of 'green minerals,' which has been responsibly extracted and processed. Current ESG and responsible sourcing efforts are attempting to tackle the minerals traceability challenge, but they're all primarily standards-based approaches (i.e., CopperMark, IRMA). Saudi Arabia has the opportunity and ability to hone in on solving the traceability challenges in commodities by leveraging its resources to create innovative new partnerships and pilots, becoming the "Green Exchange" of the future for the super region (Africa, Middle East and central Asia).

A major challenge in the provenance of minerals is the sheer number of global, regional, national, and local standards and regulations, which cover different commodities and different industries. This has made it incredibly difficult to narrow the scope and align on a single standard, but this harmonization effort is underway and there's a sufficient number of organizations tackling this challenge. Just one example of this is the work ICMM is spearheading towards a single industry standard for responsible mining, working with stakeholders including OECD, the Responsible Miners Initiative and downstream companies to align on a small number of standards across all aspects of responsible mining[1]. The challenge of responsible sourcing and alignment on a single set of standards, while still early, is being attempted by several groups. Minerals traceability, however, is still an emerging issue, providing the opportunity for someone to take the lead.

1. ICMM (2023, January 1). ICMM Metrics & Standards.

Traceability and certification at each step of the value chain

In addition to the technological challenge, another challenge the minerals industry must contend with when it comes to traceability is an overall lack of trust in mining. Downstream companies and the consumers they serve are wary of mining company-led approaches to traceability. Recent industry-damning features, such as Bloomberg's expose of Ford's electric vehicle sourcing[2], and decisions like universities banning mining firms from recruiting on campus, are just a couple examples of the way the industry is being negatively impacted by public perception. As noted in a recent article, "never before has the world needed so much from an industry that is trusted so little."[3]

Current attempts at minerals traceability have focused primarily on pilots in bulk commodities, with the exception of diamonds and gold – the only two minerals to begin scaling its sourcing efforts. In 2020, BHP completed its first blockchain trade in iron ore using the MineHub platform, its foray into digitizing the sector[4]. MineHub is in the process of developing digital systems for base metals concentrates, structured finance and emissions tracking as well. Meanwhile, Tiffany established the Diamond Provenance & Source Initiative to trace each

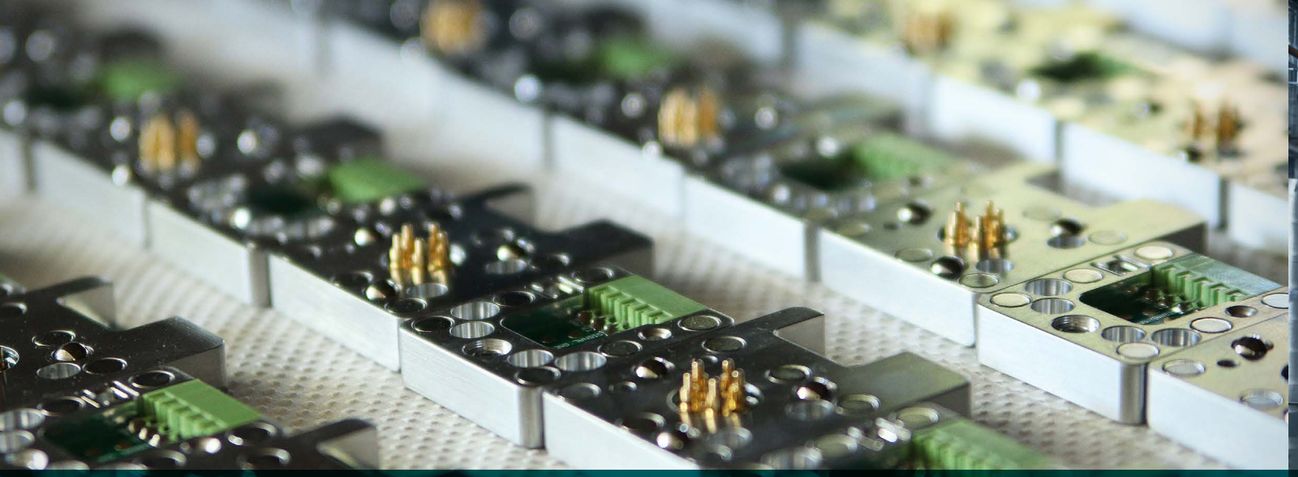
2. [Bloomberg]. (2023, February 27). Ford›s Electric Pickup Is Built From Metal That›s Damaging the Amazon [Video]. Bloomberg.
3. (2023, June 26). Mistrust in mining should worry us all. Euractiv.
4. (2020, June 28). BHP completes first blockchain iron ore trade with China›s Baosteel. Reuters.

of its individually registered diamonds, aiming to provide a full chain of custody transparency and accountability to customers. In 2020, it became the first global luxury jewelry to provide the provenance of its individually registered diamonds[5]. Gold is also only just beginning to scale. Although there are several upstream assurance mechanisms, most of those systems are currently small scale and refiners are still allowed to engage in their own due diligence[6]. Chopard's Fairmined Standard, requiring miners to demonstrate that strict requirements for working conditions, social development criteria, and environmental protection were maintained during the mining process, has impacted the World Gold Council's Responsible Gold Mining Principles (RGMPs). IMPACT's Just Gold Traceability and Due Diligence System in the DRC saw the first export of conflict-free artisanal gold from the DRC that was fully traced from mine site to consumer, though it relies on human tracking and data comparison checks. While there are opportunities to both learn from and expand upon the approaches used in these efforts, critical minerals initiatives – especially those for bulk commodities like copper and nickel – will have to look a bit different by necessity.

The combination of challenges listed above, coupled with the lack of traceability efforts around minerals critical to the energy transition, provides an opportunity for Saudi Arabia and the super region to bring new approaches and partnerships to the challenge of critical minerals traceability and create competitive advantage. To date, this hasn't been done in an intentional way in commodities for several reasons. It hasn't been a priority for the industry, because they haven't had to grapple with customers up and down the value chain making these types of demands. It also requires significant investment in scaling up existing and developing technologies. But the payoff is worth the investment, and engaging stakeholders across the entire value chain – governments, industry, and customers – enables. Better traceability of minerals critical to the energy transition – copper, cobalt, nickel, and lithium – addresses downstream demand for increased transparency. It also brings new partnerships into the fold to address the technical aspects of this challenge, creating even greater downstream value. Further, it addresses the longstanding issue of an overall decline in trust of mining, which is at an all-time low (as shown by Globescan's 22-year global survey, released late last year, measuring public trust in different industries[7]) by providing the opportunity to get ahead of the issue and not be seen as reactive to customer demands.

We propose that Saudi Arabia initiate a pilot program in minerals traceability, coupling a major tech company with a copper or nickel mine in the super region. The mine should be able to make a claim that it is a "green mineral" source – for example, it would be IRMA-certified. The emerging technologies should have seen success in adjacent industries and include the sensing and tagging technology through to the blockchain or blockchain-like platform to underpin the Green Exchange.

5. (2020, August 18). Tiffany & Co. Cements Its Leadership in Diamond Traceability. Business Wire.
6. (2023, February 1). Minerals Due Diligence – Gold. Responsible Minerals Initiative.
7. (2023, February). Globescan Report, as referenced in keynote at BMO Global Metals, Mining.& Critical



Green exchange acting as a conduit between mining/mineral processing companies and end-user companies

A great model to look to for implementing traceability is to look to the rubber industry. While diamonds and gold are discrete commodities and easier to trace, most of the key minerals are bulk commodities, making traceability efforts much more difficult. Rubber bridges that gap and provides some excellent examples of how to set up these value chains, overcome challenges in implementation, and create the right partnerships. The rubber industry was coming under increased scrutiny due to the attention being paid to deforestation. Civil society and industry aimed to collaborate and align on a set of standards for the industry, and in 2018 after a series of multi-stakeholder workshops, the Global Platform for Sustainable Natural Rubber was launched to fill that industry-stakeholder vacuum. It is an industry-wide platform with membership from civil society, tire makers, producers, processors and traders, and other end users. Since its inception, it has established a model of work that included setting up an executive committee and general assembly, a series of working groups, reporting requirements and policy frameworks, and have seen the first set of GPSNR companies align their policies with their frameworks. Its membership represents the entire natural rubber value chain, and it is seen as a leading example of multi-stakeholder collaboration and progress towards responsible sourcing in a commodity[8]. It's governed by a general assembly and a member-elected executive committee, and members must abide by a set of statutes, reporting requirements, and code of conduct.

8. (2022). Transforming the Rubber Industry from Within. Global Platform for Sustainable Natural Rubber.

GPSNR's Theory of Change for a Sustainable Natural Rubber Supply

Saudi Arabia spearheading this initiative proactively as a nation means it can bring a different perspective and a different approach to collaboration with downstream companies, and bridge the gap between stakeholders. This is consistent with the vision of modern mining put forth in the FMF 2022 closing remarks – that this can only be achieved with collaboration, determination, and technological advances. Downstream companies will be able to reliably assure governments and consumer-facing companies that these minerals are responsibly mined, and the minerals industry will have an even greater social license to operate. This is a major opportunity to bring new technologies to the forefront and provide the required assurances as part of a robust Chain of Custody for critical minerals, thereby leading to a clear competitive advantage in the provision of either green minerals and/or responsibly mined minerals.

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Peter Bryant is a recognized thought leader on ESG and sustainability; the energy transition and the criticality of the minerals value chain; and broadscale innovation and digital transformation. He speaks on these topics extensively at leading conferences and for organizations, most recently speaking at the 2023 Future Minerals Forum (FMF) in Saudi Arabia, COP26, and CERAWeek 2022. He spoke at to 1,750 global oil and gas leaders at the Baker Hughes 2020 Annual Energy Forward Meeting, and keynoted the New Zealand Prime Minister's 2019 Just Transition to Net Zero Emissions Summit. Peter is the Board Chair and Managing Director of innovation and growth strategy firm Clareo, and Co-Founder and Board Chair of the Development Partner Institute, a nonprofit focused on improved social, economic, and environmental outcomes for communities from resource development projects.

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