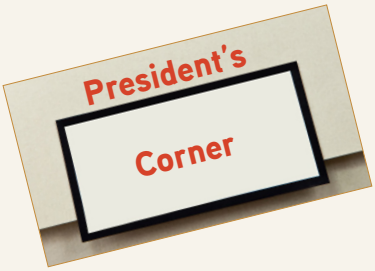

Relaunch of the Namibian Branch and Rare Earths Conference

The Namibian Branch of the SAIMM was relaunched on 18 June 2024 in Swakopmund, Namibia. Like several other branches, it had become inactive during COVID. Originally established in 2007, the Branch had been quite active before the pandemic, hosting several local events. A few Namibian-based members collaborated to plan the relaunch to coincide with the Rare Earths Conference scheduled for 18–20 June. I had the privilege of attending the relaunch and Conference to address delegates on behalf of the SAIMM.

The relaunch was attended by 27 delegates and the meeting was opened by Kesia Kariko, a Senior Metallurgist with Andrada Mining at Uis mine. The SAIMM Presidential Address was delivered, followed by the election of the Branch Committee. Tomas Aipanda, a mining engineer and current Mining Shift Superintendent at Swakop Uranium, was elected as Chair, while Himeezembi Hengari, a Mining Lecturer from the Namibian University of Science and Technology (NUST), was elected as Vice Chair. Kesia Kariko was elected Secretary. Tomas Aipanda then presented his plans for the Branch, followed by a keynote presentation by Irvinne Simataa, the Executive Vice President of Swakop Uranium. He highlighted the exciting prospects for mining in Namibia, emphasizing the abundance of critical mineral deposits and the quality of education in the country. The presentation also explored how the Namibian minerals industry could collaborate with the SAIMM.

The day before the Conference and preceding the relaunch, a very interesting workshop on rare earths was presented by Damian Connelly of METS. I took advantage of the opportunity to learn a little bit about rare earths.

Rare earth elements (REEs) have unique and useful properties. They have applications in magnetics, batteries, polishing powders, glass and ceramics, fluid cracking catalysts, autocatalysts, phosphors, and fibre optics. Demand is driven by computers, mobile phones, monitors, TVs, medical equipment, mirrors, cameras, hybrid vehicles, electric vehicles, fuel cells, maglev trains, wind turbines, fluorescent lights, petroleum production, and low-emission vehicle exhausts. It is difficult to imagine how the modern world would function without REEs. Decarbonization will further increase the demand for these critical elements.

The REEs comprise scandium (Sc), yttrium (Y), and the lanthanide series: lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), samarium (Sm), europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (D), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb), and lutetium (Lu). Rare earths occur as oxides, carbonates, phosphates, and silicides in more than 160 minerals, but they are primarily sourced from monazite, bastnasite, and xenotime. These minerals invariably contain significant quantities of uranium (U) and thorium (Th), which are radioactive. The concentration of individual REEs depends on the minerals and nature of the geological deposits in which they are found. The value of the mineral resource depends on the quantities and values of individual REEs. Heavy or yttric REEs (Y and Tb to Lu) are less common and significantly more valuable. The term rare earths is perhaps a misnomer, since the combined REEs are more abundant than carbon in the Earth's crust, but they rarely occur in mineable concentrations and there are no naturally occurring elemental forms.

In addition to the challenges in finding suitable deposits, the processing of rare earths is difficult, particularly for heavy REEs.Also, there is an increased risk of radiation exposure during processing and the disposal of radioactive waste (waste water and residue) must be carefully managed. Environmental management plans (EMPs) must address surface and groundwater impacts, and prevention of harm to fauna and flora. Environmental, Social and Governance (ESG) aspects are therefore a key component of any REE project.

President's Corner *(continued)*

Currently, China dominates the rare earths market, accounting for approximately 60% of mine production and close to 90% of processing and refining, and perhaps 99.9% of heavy REEs. As recently as 2005, China's share of global production was 98%, but production in other countries has steadily increased to meet the growing demand, although processing outside of China has clearly not increased to the same extent. China announced a ban on the export of rare earth extraction and separation technologies in December 2023, and introduced further restrictions aimed at protecting supplies in June this year. This highlights the necessity to mine and process REEs outside of China.

Significant REE mineral deposits have been discovered in Southern Africa and there is potential for further exploration. The challenges in unlocking these resources lie in the successful extraction and separation of all REEs and the responsible management of waste disposal.

The Second International Conference on Rare Earths brought together experts to discuss the latest advancements in the exploration, extraction, and processing of REEs. The theme 'Global Impact and Sustainable Supply' was particularly apt. Overall, the Conference highlighted the global significance of REEs and the ongoing efforts to optimize exploration, extraction, and processing. The discussions underscored the importance of sustainable practices and innovative technologies in meeting the growing demand for REEs in high-tech and green energy applications. The event served as a pivotal platform for knowledge exchange, collaboration, and fostering advances in the REE industry. Congratulations to the Organizing Committee and the Secretariat for putting together a most successful conference.

W.C. Joughin
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