

Why the mining sector is vital to green industry

By [Zuneid Yousuf](#)

17 Sep 2020

Back in May 2019, the World Bank launched its [Climate-Smart Mining](#) initiative. It was the first fund dedicated to making mining for minerals climate-smart and sustainable. It came as little surprise to those in the mining sector that a global institution brought the issue to the fore, however over a year on the question remains whether mining can truly be a "climate smart" sector



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Green tech minerals

Climate solutions, like solar energy, wind energy and electric vehicles, depend on rare earth elements. These so-called green tech metals have unique qualities, such as their magnetism, that make them very difficult to substitute with other elements.

Our growing demand for green solutions and green technologies introduces a parallel demand for the very materials to make them. A low carbon future will be significantly more mineral intensive, with a recent report finding that the production of graphite, lithium and cobalt, could increase by nearly 500% by 2050, to meet the growing demand for clean energy technologies.

While demand for these minerals and metals grow, it represents a challenge. How can climate smart mining practises that mitigate the impact on vulnerable communities and the environment be implemented? A shortage of these materials caused either by not mining them quickly enough to meet global demand or due to market monopolisation could seriously hold back the development and roll out of low-carbon technologies.

Renewable energy

My country, Zambia, should interest anyone that is committed to a transition towards clean energy and a greener future. The Zambian mining sector is one of the most prolific cobalt and copper produces on the planet, and the metal is increasingly relied upon by the renewable energy sector. Copper is central to wind power generation, which currently requires an average of 450 kilotons of copper per year and this is expected to increase to 600 kilotons per year by 2028. Future requirements for renewable energy are likely to mean larger wind turbines, more solar power and more electric vehicles – all of which rely heavily on copper due to its high conductivity and durability.

One way in which the Zambian sector is taking the lead is through using renewable energy to power mining efforts and working to reduce the amount of energy and water consumed in the production of copper. Access to reliable and cost-effective forms of energy is a strategic priority for the global mining sector and accounts for up to 11% of global energy use. Where traditionally the sector has relied on conventional fossil-based fuel sources, it has not always been practical. The more remote the mine, the more likely off-grid power solutions are required. It has become clear that renewable energy sources offer a long-term solution.

While the importance of these metals for a greener future are clear, the answer cannot solely be ever-increased mining. Instead, we must consider re-use wherever possible. Copper and rare earth metals are hard to substitute, and their re-use is dependent on recycling. Given opening new mines is a lengthy process, a robust global recycling infrastructure is vital.

Forest-smart mining through the prevention of deforestation and supporting sustainable land-use practices have also been put forward as way to improve the sector's climate smart approach. Where best practise exists in this regard, improvement is needed in order to share knowledge about the best available technologies, and widespread adoption of these by the mining industry globally. For example, the re-purposing of old mines that are still perfectly workable but require the deployment of new technologies, must be considered.

Small-scale mining

At the same time, a more diverse supply of the metals that are crucial to low-carbon technologies is needed. It means incorporating both small and large-scale operations while allowing miners greater control over revenue and access to markets. Small-scale African mining operations are vital in these efforts, while at the same time having the local knowledge and greater appreciation of the natural environment.

In a world increasingly focused on driving forward renewable energy and clean technologies, it is absolutely vital that green tech metals are sourced sustainably and responsibly across the world. The mining sector is vital to green industries, and if the sector does not adopt a sustainable approach, we risk solving climate change by creating new environmental problems.

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