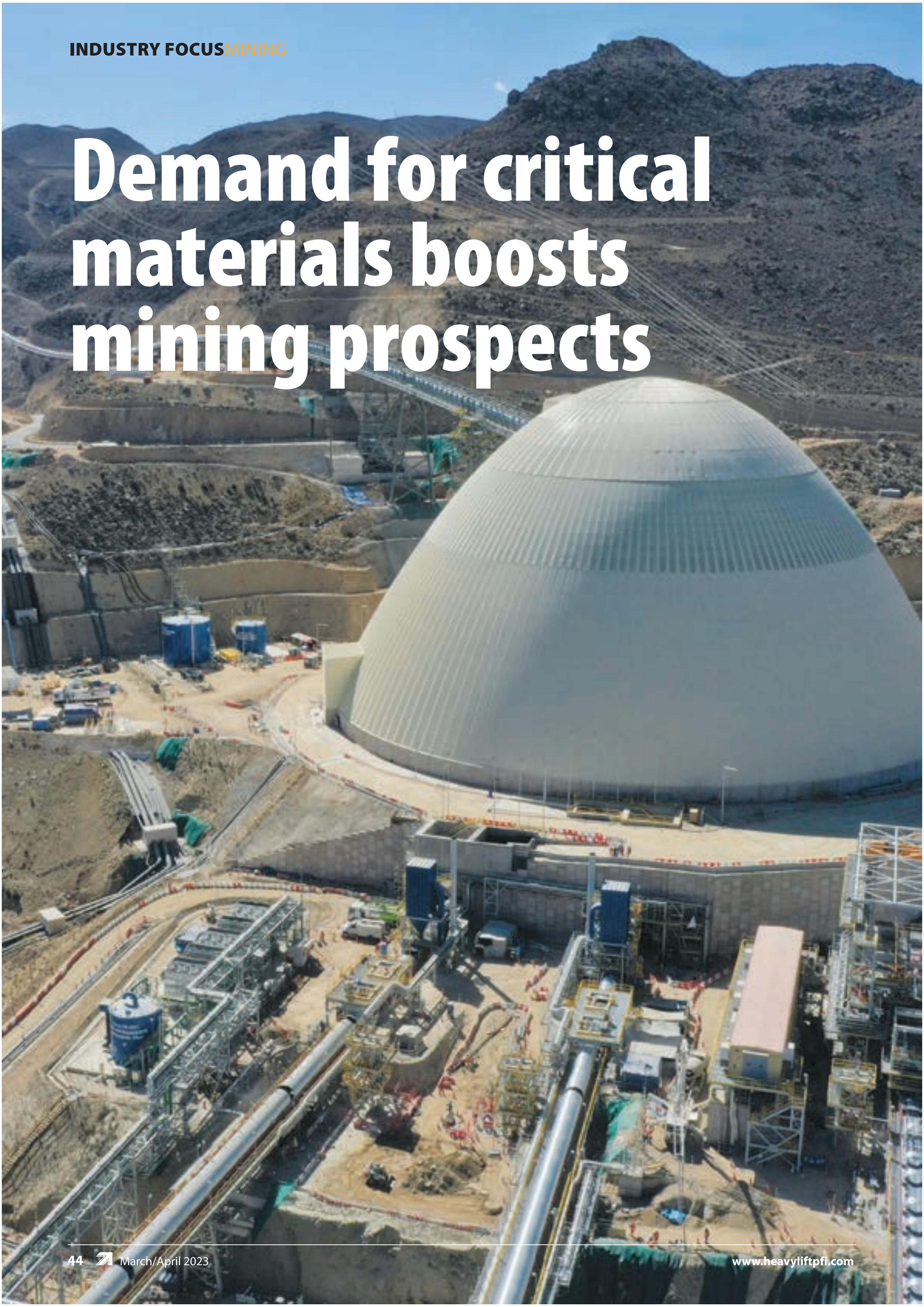
Demand for critical materials boosts mining prospects



Anglo American's Quellaveco copper mine in Peru.

Anglo American

Whether it is expanding existing mining facilities or greenfield projects, the future is bright for the mining sector as government policies increasingly focus on meeting critical materials requirements. *Phil Hastings* reports.

Potential investors in new mining projects currently need to weigh up the likely impact of two conflicting influences – negative general macroeconomic concerns and more positive longer-term industry fundamentals.

Short term, a recent report from S&P Global Market Intelligence, *The Big Picture: 2023 Metals and Mining Industry Outlook*, pointed out that for most of 2022, commodity markets were dominated by macroeconomic events (inflation, covid-related supply chain issues, the Russia/Ukraine war and soaring energy prices).

Those influences, the report said, led to more subdued demand for mined commodities last year "and with the increasing threat of a global recession, they are likely to weigh on the fundamentals again in 2023".

That view was backed up by Frank Mueller, general manager of multipurpose shipping operator AAL Shipping, which transports overweight/outsize equipment for mine expansion and upgrade projects worldwide. A recent example of the line's projects involved shipping 20,000 freight tons of reclaimer components from Henderson to Port Hedland in Western Australia on its scheduled monthly Asia to Australia West Coast service to boost the port capacity of an iron ore mining facility in Nelson Point.

Macroeconomic conditions

"Deteriorating global macroeconomic conditions are expected to persist through the start of 2023, representing a downside risk to the mining sector as many commodity prices slide and equity market support weakens," argued Mueller.

"Producers will be impacted by narrowing margins, while the exploration sector will restrain activity amid tighter financing conditions. We anticipate conditions will improve during the year, however, as central banks gain the upper hand on inflation."

The S&P Global Market Intelligence report added that because of current macroeconomic influences, any imminent new mining sector investment is likely to be focused more on the further development of existing sites and advanced projects rather than exploration, a "worrisome" trend seen for well over a decade.

"The lack of early-stage exploration, combined with major (mining) companies rationalising their project portfolios since 2012, has caused significant thinning of project pipelines for most commodities," it said.

Mueller agreed that in the short to medium term, existing mines are likely to benefit first from any increases in capital expenditure as producers look to increase production output.

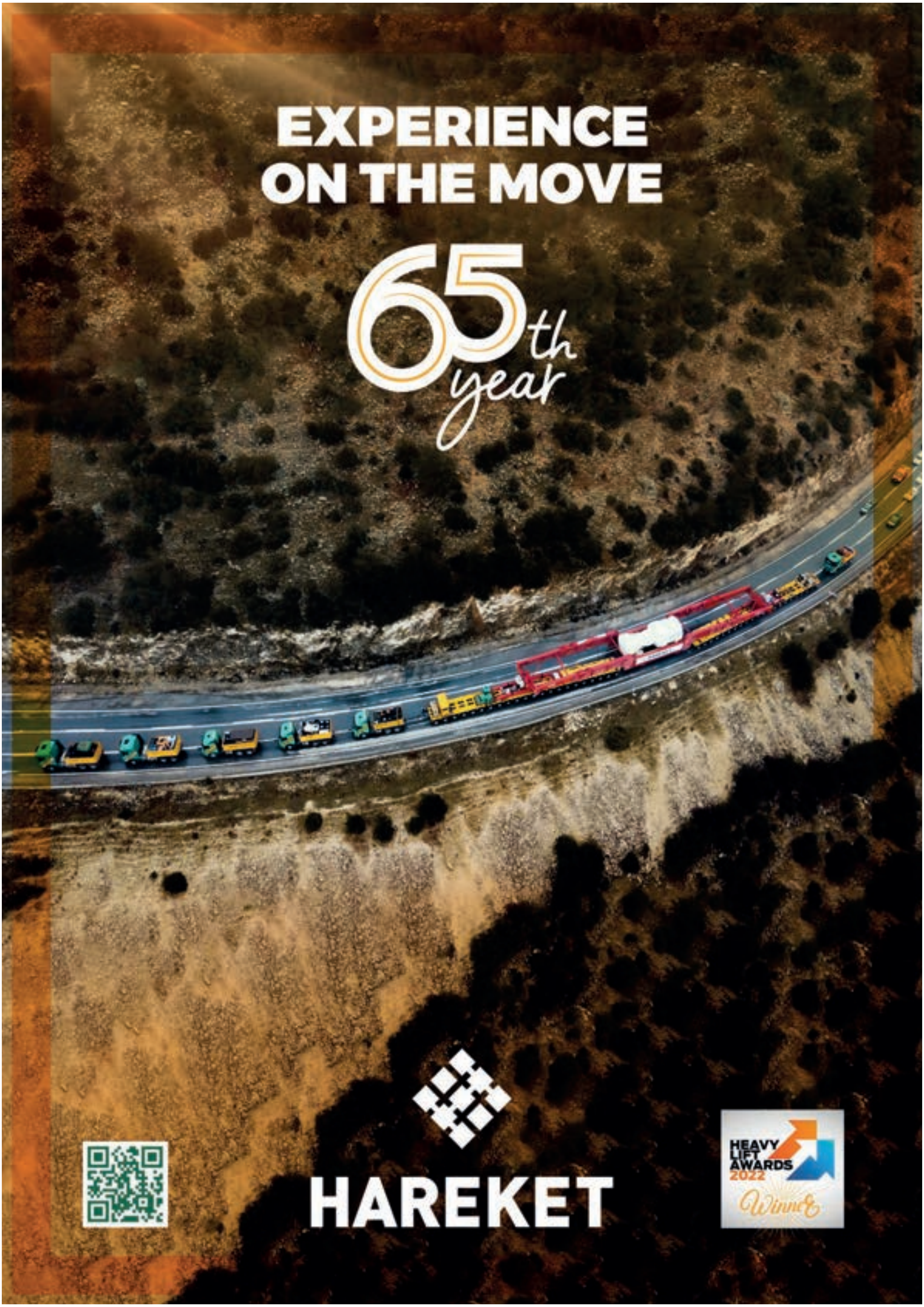
"For the longer term, miners will also always choose to expand existing mine capacity as opposed to developing new mines to offset mine depletion. The main reason for that is the difficulties involved in obtaining the licences to operate new mines," he added.

Other mining industry observers are more upbeat about the current overall mining sector picture and related heavy lift and project forwarding work.

One of them is Xavier Lariau, global operations expert for mining for Ceva Logistics, which provides project logistics for mine construction/expansion developments and supply chain services for existing

Deteriorating global macroeconomic conditions are expected to persist through the start of 2023, representing a downside risk to the mining sector.

– Frank Mueller, AAL Shipping


EXPERIENCE
ON THE MOVE
65th year
HAREKET
HEAVY LIFT AWARDS 2022
Winner

operations. Last year, for example, it supported several major new mining projects, including some in Canada, Brazil and West Africa.

Lariau suggested that the global mining industry has generally remained isolated from the effects of various global disruptions – including the pandemic, geopolitical tensions and economic/energy uncertainties – over the past several years.

"As in that period, commodity prices remain elevated and we anticipate they will hold steady in the near term," he continued. "As a result, despite broader macroeconomic trends, we expect the majority of mining projects to advance in order to meet the demand for minerals. Our near-term outlook relating to heavy lift and project forwarding activities in that sector is positive."

Looking beyond the current negative macroeconomic influences, the S&P Global Market Intelligence report is more optimistic about future mining project investment prospects, suggesting that commodities critical to the global energy transition effort (such as nickel, cobalt, lithium and copper) could see some supply constraints emerging by 2024.

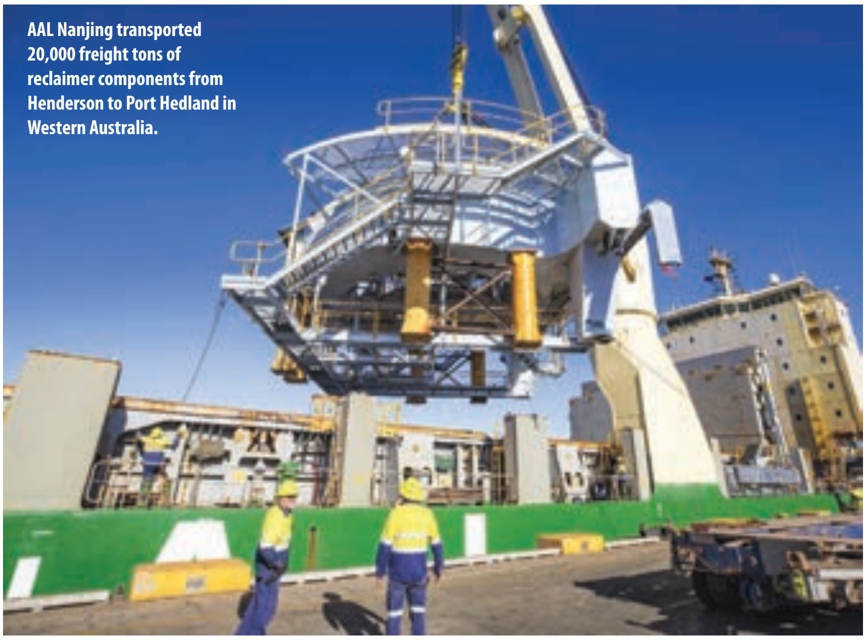
"As government policies increasingly focus on meeting critical materials requirements through domestic and regional supply chains, the mining sector should see additional support for the development of projects in the near-to-medium term," it commented.

Echoing that, Mueller said: "Lower activity levels seen in the second half of 2022 and expected through 2023 will reinforce the industry's importance to the global energy transition. Forecasts suggest supply constraints affecting commodities critical to that effort will emerge as early as 2024, with a shift toward renewable energy technologies."

Further investment

Those anticipated developments, Mueller suggested, should "hopefully" spur further investment in mining. "The transition towards decarbonisation starts and ends with metals – and the demand growth for electrification-related metals will be as much as 14 times higher by 2030 compared with the last few years."

José Luis Vidal, chairman of the board of directors of Brazilian international project forwarder WV Logistics & Services, whose involvement with the mining industry includes a particular focus on supporting the development of port infrastructure and other transportation systems to move mined commodities, also highlighted the influence of the energy transition.



AAL Nanjing transported 20,000 freight tons of reclaimer components from Henderson to Port Hedland in Western Australia.

"According to a report by BloombergNEF, demand for key metals needed to deploy energy transition technologies such as solar, wind, batteries and electric vehicles will increase five times by 2050, under a so-called net-zero scenario," he reported.

In a similar vein, Tim Biesemans, regional director – Southern Africa for Sarens Siba, a provider of lifting solutions for mining industry projects in South Africa and the wider sub-Saharan region, commented: "At this time, investment in greenfield mining projects is still slow but with the increasing requirement for commodities to support the global energy transition there is expected to be increased investment in copper, nickel, cobalt and lithium mining projects."

Despite broader macroeconomic trends, we expect the majority of mining projects to advance in order to meet the demand for minerals.

– Xavier Lariau, Ceva Logistics

Likewise, Ceva's Lariau stated: "Demand for certain minerals will drive new investment in the mining sector and we are expecting to see a mix of greenfield projects and expansion of existing locations to meet that growing requirement."

Mixed picture

Right now, the picture regarding current investment in new mining equipment appears mixed. That is certainly what emerges from the latest quarterly *Surface Mining Equipment Index* published by Parker Bay, which covers Q3 2022.

It revealed that while the number of such items delivered globally in that period by equipment manufacturers participating in the index and their total value were up on both the Q2 2022 figures and the comparable 2021 Q3 numbers, there were some significant geographical and individual commodity sector variations.

"Geographic [market] shifts are common quarter to quarter and the most recent one was no exception," reported Parker Bay. Miners in Africa, Asia and Latin America saw a drop in shipments, compared with the previous quarter, while Australasia recovered from a modest Q2 decline, with Q3 deliveries up 17 percent quarter-on-quarter and up 69 percent over the previous year. North American miners, meanwhile, recorded a modest gain.

Deepsea mining faces array of challenges

Interest in deepsea mining, which is seen as a potential major source of the metals required to build batteries for storing renewable energy and powering vehicles, is continuing to grow.

If that interest is ultimately translated into large-scale commercial operations, it could create a significant new project logistics market. Reflecting that possibility, several heavy lift shipping and support vessel operators with experience in the offshore oil and gas/wind energy sectors are already laying the foundations for an involvement through various investments, as outlined in *HLPFI's* last report on the mining sector.

Meanwhile, several trial deepsea mining projects are already under way or being planned in various parts of the world. Late last year, for example, Allseas Group, an offshore energy market contractor, and its partner, the Metals Group, completed a deepwater pilot test programme collecting polymetallic nodules

from the floor of the Pacific Ocean using the former drillship Hidden Gem (pictured).

However, there is still considerable general debate about the economic viability of future commercial deepsea mining operations. There is also substantial opposition on environmental grounds, particularly in relation to the disturbance of ocean floors. For instance, Hidden Gem became the focus of a protest from Ocean Rebellion in February, which demanded an end to deepsea mining.

José Luis Vidal, chairman of WV Logistics & Services, highlighted a further potential challenge. While deepsea mining could be of interest to companies with experience in the offshore oil and gas business, he said, both that industry and the mining sector already face personnel recruitment issues. That problem is being exacerbated by the growth in labour requirements from the clean energy industry.

"Companies in the mining and fossil fuel sectors around the world are cutting jobs and struggling to attract qualified professionals," he stated.

"However, the opposite is happening in the clean energy sector, which is expected to generate more than 10 million jobs by 2030. Relevant qualified professionals are prioritising working for companies which have an involvement with sustainability."

Variations were also apparent in the Q3 2022 figures for equipment deliveries based on different mined commodity sectors, reported Parker Bay. Despite the significant decline in iron ore prices, miners took delivery of machines with valuations up a collective 72 percent compared with Q2, but modestly lower than Q3 2021. The only other mineral market higher in Q3 versus Q2 was coal (up 22 percent).

Deliveries to copper and gold mines were both down, while oil sands shipments continued to be erratic, "in part owing to the much smaller number of mines and attendant equipment fleets", said Parker Bay.

"We do anticipate future growth [in mining equipment deliveries] due in part to the much higher oil prices and in part due to mines' stated plans to upgrade existing truck fleets to autonomous drive," the analyst concluded.

Patchy investment

The patchy geographical scene for current new mining industry investment identified in the Parker Bay report was confirmed by those spoken to for this report, although most also recognise signs of a market recovery in their regions.

That is the case in Africa, for example, where prospects for new investment now appear to be improving after a quiet period over the last couple of years.

"Mines in South Africa face many challenges, from load-shedding [temporarily shutting off power supplies] to political red tape and volatile commodity prices. Over the past couple of years, most expansion, upgrading and new investment in the mining sector has been delayed," reported Biesemans.

However, he continued, the picture regarding new investment to support the expansion/upgrading of existing mines and mining-related facilities is already looking brighter this year and this trend is expected to continue into 2024. "Major upgrade and expansion projects for mines in South Africa, Zimbabwe, Namibia and various other countries in Africa are in the final stages of being awarded," he added.

Prospects for new mining industry projects are also looking brighter in Brazil, according to Vidal of WV Logistics, boosted by significant changes in recent years to the regulations covering the country's railways and ports – "which are closely intertwined with the mining sector" – to allow more private sector investment.

"There are currently requests from the private sector to construct more than 83 sections of new railway; over 30 contracts have already been signed and a significant number of requests made to the federal government for the development of port terminals, and some operational port complexes are requesting the right to build their own railroads in order to diversify and expand their business," he said.

"That increased investment in the railways and ports is in turn opening up opportunities for the implementation of mining assets in Brazil, which were previously not feasible or viable due to the lack of infrastructure capable of transporting high volumes of mined commodities at competitive costs."

> **The Balkans region is now starting to see exports of some mined products, specifically copper concentrate, which we are involved in shipping from time to time.**
>
> – Dave Roosen, R&B Global Projects

Subdued market

Dave Roosen, director projects/sales for Croatia-based R&B Global Projects, which has in the past provided forwarding services for several mining projects in the Balkans region, reported that the market is currently subdued but with some signs of increased activity.

"Over the last couple of years, there have not been any new projects or even plans for such developments. On a more positive note, though, the region is now starting to see exports of some mined products, specifically copper concentrate, which we are involved in shipping from time to time," he commented.

Overall, concluded AAL's Mueller, as governments worldwide increasingly focus on meeting critical materials requirements through domestic and regional supply chains, the global mining sector should gain additional support for project developments in the near to medium term, "buoyed by high prices through 2026 compared with pre-pandemic prices". HLPFI


Rio Tinto's Oyu Tolgoi mine in Mongolia.

Rio Tinto

Mining faces decade of 'exciting' change

Two factors are set to help drive investment in mining projects over the next decade – ever-growing environmental pressures and the installation of high-tech equipment in existing mines. *Phil Hastings* reports.

"The next decade will probably see some of the most exciting and transformative years in the history of the mining industry with the global drive to conform to low-carbon, low-waste mining," stated Tim Biesemans, regional director – Southern Africa for Sarens Siba.

Frank Mueller, general manager at AAL Shipping, argued that development is actually just one element of a growing wider environmental, social and governance (ESG) influence on mining operations.

"The standout factor for the sector is the rise of ESG, with environmental issues and increased regulation the top industry risks, followed by social licence to operate. ESG will be a cause of major disruption in the industry over the coming three years," he said.

José Luis Vidal, chairman of WV Logistics & Services, voiced a similar observation.

Environmental considerations are just part of a range of ESG requirements being imposed on miners and their service providers.

– José Luis Vidal, WV Logistics & Services

"Environmental considerations are just part of a range of ESG requirements being imposed on miners and their service providers."

Commenting specifically on the likely impact of environmental influences, Vidal said various groups are working on the transformation of current mining exploration processes so they can meet the new requirements. "Those new projects and processes will require capital expenditure, which will in turn generate a demand for the transport of machinery and equipment."

Biesemans said various factors have highlighted the need for the mining industry to change and move towards cleaner and environmentally friendly processes.

Major challenge

However, he also warned that complying with those environmental requirements and achieving safer mining while at the same time remaining profitable will be a major challenge for the industry, "and might fuel the shift towards the electrification and automation of operations". For example, he added, many mining companies are investing in battery-driven mining equipment to curb the environmental impact of their operations.

Vidal said there is an increasing tendency to use autonomous trucks for operations inside mines while autonomous rail locomotives are being trialled for the transport of commodities between mines and ports. In that context, he pointed out, electric and hybrid equipment is being tested with the aim of reducing CO_2 emissions.

Commenting on the general issue of greater mine automation and digitalisation, Mueller said that to date, the sector's adoption of the Industry 4.0 era (automation and data exchange in technology and processes) has been slow.

"With the experience of the Covid-19 pandemic, though, producers are now likely to accelerate the adoption of digitalisation and automation in the mining process," he suggested.

For instance, the Roy Hill mining operation in the Pilbara region of Western Australia recently announced that it will expand its autonomous haulage system from March 2023, converting its mixed fleet of 96 conventional haul trucks to driverless operations and creating what it claims to be the world's largest autonomous mine. The project – a cooperation with Epiroc and automation specialist ASI Mining – will develop an autonomous haul truck solution that is scalable regardless of manufacturer, referred to as OEM agnostic.

Limited implications

However, Mueller continued, the implications of that trend for logistics providers are likely to be limited, both in terms of any changes to the origin sources of such cargo and the nature of it.

"According to a report by Mordor Intelligence, the automated mining equipment market remains relatively consolidated, with few major players. For the gigantic mining equipment that is transported by multipurpose vessels, the suppliers are the usual suspects such as Caterpillar, Komatsu, Atlas Copco and so forth," he commented.

"With the addition of more sensors and automation, the size of mining equipment pieces will only increase and thus it will still be more suitable for heavy lift/outsize cargo operations."

Biesemans suggested that the general shift towards the electrification and automation of mining operations should go hand-in-hand with major upgrade and expansion projects at many existing mines.

"Heavy lift and logistics services will be required to support the construction of such facilities, as can be seen in current projects," he commented.

Likewise, Vidal stated: "Installation of the equipment involved requires the transport of loads with extra dimensions and weight – and it will be supplied from locations where the technologies being developed have a recognised maturity when it comes to achieving reliability of production on a commercial scale."

A power module being lifted into a hydrogen heavy haul electric truck being assembled at Anglo American's Mogalakwena mine in South Africa.

Xavier Lariau, global operations expert for mining for Ceva Logistics, highlighted some of the other implications of such developments for logistics providers.

"Installation of automated equipment will continue to accelerate and, as more and more mines add a wide range of technologies, they will need to ensure that their logistics partners understand how to handle and transport that type of sensitive cargo," he stated.

As the mining sector in South Africa consumes approximately 10 percent of the total diesel used in the country, we should see a shift towards more investment in electrification and automation.

– Tim Biesemans, Sarens Siba

He additionally suggested that the trend for mining operations to invest in green energy solutions will in some cases include building large solar energy plants attached to their sites, opening up further logistics business opportunities.

Renewables in mining

"Ceva regularly works with renewable energy providers around the globe in relation to the transportation of large volumes of solar panels and their supporting equipment, and we are leveraging that expertise to also serve our customers in the mining industry," he stated.

Biesemans also commented on the logistics business prospects arising from the anticipated increased use of renewable energy to power mining operations. "As the mining sector in South Africa consumes approximately 10 percent of the total diesel used in the country, we should see a shift towards more investment in electrification and automation – and those sorts of projects will require heavy lift and other logistics services."

HLPFI