The Extractor
Mapping Namibia's Mineral Resources
Volume 01
Edition 9
Website:
www.theextratormagazine.com
ISSN 2026-7363
9 772026 736003

Namibia's Copper Fields

Celebrating Hage G. Geingob - Green Energy Champion
P. 04

Tschudi Copper Mine
Source Consolidated Copper Corp

Inside

Vol. 1 No. 9

Physical Address:
127 John Meinert Street,
Windhoek West

Website:
www.theextratormagazine.com

Editorial
+264 81 608 0457
wonder@theextractormagazine.com

Sales and Marketing:
Crucial
+264 85 286 7439

Subscriptions:
+264 81 608 0457

Design & Layout:
Overcomer Creations CO.
Overcomercnc@gmail.com
+264 81 751 7470

A LOUD VOICE FOR CLIMATE CHANGE.

PRESIDENT DR. HAGE GEINGOB

3 AUGUST 1941 - 4 FEBRUARY 2024

Extractor Magazine Vol.1 Edition 9

Namibia's Copper Fields: The Timeline

1851: Sir Francis Galton is the first European to report the presence of copper in the Otavi Mountain Land.

1855: Matchless Mine is opened by Walwich Bay Mining Company.

1860: Walwich Bay Mining Company suspended operations at Matchless Mine.

1892: South West Africa Company expedition examines Tsumeb outcrop.

1900: Otavi Minen and Eisenbahn-Gesellschaft (OMEG) acquired the mineral rights from the South West Africa Company.

1908: OMEG commences operations at the Kombat mine.

1915: Tsumeb Mine closed due to wartime activities.

1921: Tsumeb Mine recommences operations.

1925: OMEG ceases operations at the Kombat mine.

1932: Tsumeb Mine closed due to the Great Depression.

1937: Tsumeb Mine reopened.

1940: Tsumeb Mine is closed due to the Second World War.

1947: TCL, under the administration of Newmont, bought the mineral rights, physical assets and farms from Custodian of Enemy Property.

1948: Tsumeb mill commenced production of concentrates.

1961: Construction of copper and lead smelters and lead refinery commenced at Tsumeb.

1962: Kombat started milling at 680 tonnes per day.

1963: Copper and lead smelter at Tsumeb commenced production.

1967: Matchless mining grant purchased, and development recommenced.

1970: Matchless Mine production recommences.

1976: No. 2 circuit of copper smelter commenced smelting concentrates from Otjihase Mine.

1982: The copper smelter's No. 2 circuit resumes smelting concentrates from the reopened Otjihase Mine. The lead smelter was converted to a single-blast furnace operation.

1983: Matchless Mine closed down and placed on care and maintenance.

1984: Copper smelter changed over to one reverberatory furnace operation.

1985: Matchless Mine closed indefinitely and allowed to flood.

1986: Slag milling starts at Tsumeb.

1987: Gold Fields of South Africa assumes administration of TCL.

1995: Development of Khusib Mine commences, and the first one is produced.

1996: Industrial action results in the closing of operations for four months.

1998: TCL was placed in voluntary liquidation.

2000: OMPL assumed control of TCL assets and commenced production from Tsumeb Mine, Kombat Mine, and Khusib Springs.

2006: Weatherly takes over OMPL after restructuring its debt and environmental obligations.

2008: In December, Otjihase and Matchless mines were placed on care and maintenance.

2010: The Company sold the Tsumeb smelter to Dundee Precious Metals, and an additional US$7m loan was negotiated with Louis Dreyfus Commodities to provide funds to reopen the Otjihase Operations (Otjihase mine & concentrator and Matchless mine).

A MOU was signed with ECE to establish a JV company (ECE 65%, WTI 25%, WTI shareholders 10%) to pursue the re-development of the Berg Aukas zinc/lead mine in Namibia.

2011: Mining and processing of concentrates was resumed at Otjihase. China Africa Resources (the JV company holding the Berg Aukas asset) was listed on AIM.

Weatherly sold 2.5% interest to the National Union of Namibia Workers' investment arm, Labour Investment Holdings Investment

2012: The company completed the Bankable Feasibility Study for the Tschudi Project and signed a term sheet with Orion Mine Finance, providing 100% debt funding.

2013: The Namibian Ministry of Environment and Tourism granted the Company an Environmental Clearance Certificate for developing the Tschudi Copper Mine. Drawdown of the Tschudi loan commenced.

2014: Construction of the Tschudi Mine heap leach pads and processing plant commenced early in the year. By mid-year, the mining contractor had mobilised to the site, and waste stripping commenced.

2015: At Tschudi, the first ore was stacked on the heap leach pads in January, and the first LME Grade A copper cathode was produced in February.

By December, Tschudi reached a nameplate capacity of 17,000tpa. In September, due to continued low copper prices, production at the Otjihase Operations was suspended, with both mines and the concentrator being placed on care and maintenance and converted to Project Development status.

2016: Tschudi achieved record copper production of 1,506 tonnes in March – 6% above nameplate. However, excessive water in the pit decreased ore supply and subsequently lowered copper production during the middle of the year.

Remedial action brought the water under control, and by Q4, production was again exceeding nameplate by 6% at a C1 cost of US$4,222/tonne copper. During the latter half of the year, the company began evaluating restart options for the Otjihase Mine.

2017: In early 2017, Tschudi realised that the leaching of mixed (oxide and sulphide) ore was significantly slower than predicted – impacting production in the first half of the year. Remedial action, including increasing ore production and stacking and constructing additional leach pads, resulted in resumed nameplate production by the end of Q3. At the end of the year, the company said it was evaluating restarting the Otjihase Mine in a rising copper price environment.

Background

The Khomas Highlands (Central Operations)

Evidence from missionary sources and early explorers shows that the indigenous Namibians mined and smelted copper in the Khomas Highlands, specifically at the Matchless Mine just outside Windhoek.

One account most people rely on is Swedish explorer, hunter, and trader Charles Andersson's letters from his travels through Namibia and Otjimbingwe, where he

had set up his base after buying Walwich Bay Mining Company's assets.

According to Andersson, no one knows how the name Matchless came about, but he says the Europeans were not the first to mine copper in the area.

Researcher John Kinahan says there was evidence of copper mining, processing and trading "by alleged Dama smiths" in the 18th and 19th centuries, as recorded by European travellers.

Kinahan also contends that there is documented archaeological evidence of copper smelting at the Matchless 400 years ago.

Other sources indicate that furnace sites that were excavated in the area were between 200 and 300 years old.

The Otavi Mountain

British traveller Francis Galton's 1851 writings mention Bushmen and Ovambos transporting copper near Otjikoto, providing early insights into the region's mining and trade practices.

Andersson also reported the local population's copper smelting activities at Tsumeb, known as 'The Hill of the Frog.'

Their accounts around the 1850s talk about the San people, who lived at Otjikoto Lake and mined malachite from the Otavi Mountains. The Otjikoto Lake is just 24km from the mountains. The San traded the malachite with the Owambo people, who smelted it.

The Owambo, known for their metalworking skills, would then smelter to extract the copper from the ores. Smelting involves heating the ore to high temperatures to separate the metal from impurities.

The extracted copper could be fashioned into various tools, ornaments, or other valuable items, meeting both practical

and cultural needs within the Owambo society.

The Owambo people might have also participated in regional trade networks, exchanging copper and other goods with neighbouring groups.

The utilisation of copper by the Owambo people served as a significant aspect of their economic and cultural activities, contributing to the region's broader historical narrative of mining and metalworking.

Initially, Germany owned the territory and granted exclusive mineral rights to the South West Africa Company (SWACO) in 1892, covering nearly the entire northern half of Namibia. In 1892, various copper occurrences in the Otavi Valley, including Tsumeb, Gross Otavi, and Asis, were investigated.

From 1892 to 1895, SWACO's geologist Matthew Rogers conducted the first geologic mapping in the Otavi Mountains, including the Tsumeb Mine.

Rodgers confirmed the existence of significant copper, lead, gold, and silver deposits. By 1900, SWACO had also granted mineral rights for a 1,200 km2 concession to the Otavi Minen Und Eisenbahn Gesellschaft (OMEG).

A railway was built between 1905 and 1906 to connect Tsumeb to Walvis Bay to exploit the deposit.

After the First World War, SWACO and OMEG's properties were given up and sold to the newly formed Tsumeb Corporation Limited.

The Haib Copper Mine

The German prospectors identified the deposit around the late 1800s or early 1900s. Small tonnages of high-grade copper carbonate ore were mined at this time.

After World War II, the prospect was pegged as claims by prospector George Swanson, who carried out small-scale mining and tank leaching operations.

Over 6,000 tons of hand-sorted high-grade copper ore, reportedly at 18% copper, were sold to the O'okiep Copper Mines across the border at Nababeep in South Africa.

In 1963 – 1964, Falconbridge completed a more detailed exploration programme looking at the higher grade zones within the Haibdeposit. They drilled eleven diamond drill holes, totalling 1,012 metres of drilling. The drill hole intersections' average grade was 0.33% Cu.

During 1968 – 1969, King Resources of South Africa Pty Ltd conducted a diamond drilling programme of 21 holes totalling 3,485 metres. They examined both lower and higher-grade sulphide zones, as well as the higher-grade oxide shear zones.

From 1972 to 1975, Rio Tinto Zinc conducted the first extensive and systematic investigation of the Haib deposit. Geochemical and chip sampling surveys and IP and Resistivity surveys were conducted. One 120-diamond drill hole totalled 45,903 metres.

The cores from this programme are still intact and stored in a core shed on site. RTZ was sampled by compositing half bodies over 2-metre intervals and submitted these to determine total copper and, where appropriate, oxide copper (acid-soluble copper).

Composite samples from each drill hole were also tested metallurgically to determine recoverable copper. They were assayed for molybdenum, silver and gold, indicating average contents of 25 g/t Mo, 0.01 g/t Au, and 0.9 g/t Ag.

Tonnage and grade estimates at various cut-offs were made, and a conceptual pit design was proposed.

In November 1993, Rand Merchant Bank Ltd of South Africa acquired an option over the Haib property. Venmyn Rand Pty Ltd. produced a study of the project, including a compilation of all the available drill hole and assay records from previous investigations and set up a computerised drill hole database.

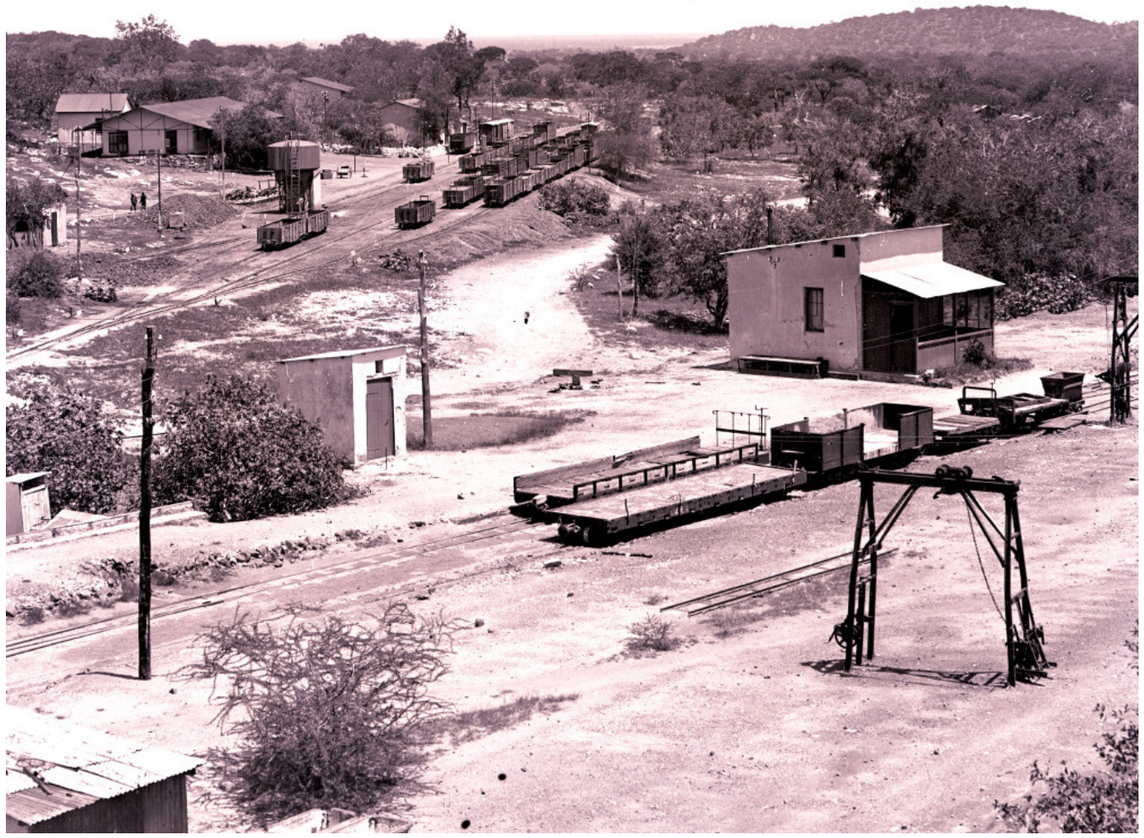
It was concluded that the increase in the copper price since the 1970s, the development of low-cost/ high tonnage mining systems and new and refined technologies such as bacterial leaching, solvent extraction and electro-winning combined to create a situation where the development of the Haib deposit could represent an economic project; however, no further exploration work was done and appointment terminated in 1995.

In March 1995, Great Fitzroy Mines NL and RMB George Swanson signed a Namibian Copper Joint Venture.

From 1995 to 1999, NCJV drilled 12 infill holes, drilled five geotechnical investigation holes, completed 126 metres of excavation in an adit and two crosscuts for bulk sampling and metallurgical testing and carried out various test works, including mining cost audits, bio-leaching studies, and milling and grinding studies. NCJV ran into financial difficulties, and work was stopped at the Haib deposit in early 1999.

Copper Fields and The Companies

Walwich Bay Mining Company



Germany aimed for a colony in South West Africa without major financial investments. However, the German Colonial Society for Southwest Africa lacked funds, jeopardising the colonial venture. The Cape Colony government urged British-German cooperation, leading to the creation of the South West Africa Company in 1892.

Founded in Cape Town in September 1854, the Walwich Bay Mining Company and the Great Namaqua Mining Company, established in October 1854, aimed to exploit copper deposits in then-South West Africa.

Most mining companies relied on missionary accounts for information. Missionary reports from the 18th and 19th centuries indicated copper mining activities at Matchless Mine involving Damara smiths.

Archaeological findings from the Matchless area date back 400 years. The Walwich Bay Mining Company and the Great Namaqualand Mining Company brought equipment to Walvis Bay around March 1855, and eight men arrived. They initially visited Chief Swartbooi's compound at Klein Aub, approximately 90km from Rehoboth, and agreed to start mining copper.

The Walwich Bay Mining Company set up its headquarters at Otjimbingwe, transporting copper ore to the Port of Walvis Bay. To sustain operations, the company needed more copper ore. It ceased operations in 1860, selling off assets, except the mine, to Swedish explorer and trader Charles John Andersson.

1892: South West Africa Company

In 1892, the German Colonial Department approved transferring the Damaraland Concession to the newly established South West Af-

> In the mid-20th century, Newmont expanded by acquiring the Tsumeb copper-lead-zinc mine and Palabora, a South African copper mine. The Tsumeb Corporation Ltd., established in 1946, managed the Tsumeb Copper Mine under Newmont's leadership.

rica Company, ending uncertainty about Damaraland's fate. Despite being a British entity, the company, tasked with developing the territory under German control, played a significant role in early economic history, facing unique challenges operating in German territory.

Germany aimed for a colony in South West Africa without major financial investments. However, the German Colonial Society for Southwest Africa lacked funds, jeopardising the colonial venture. The Cape Colony government urged British-German cooperation, leading to the creation of the South West Africa Company in 1892.

Due to the company's Britishness, concerns arose about potential economic dominance in Germany. Yet, the British directors focused on economic, not political, goals. German financial interests later became involved, and by 1908, Germany took on more responsibility for the protectorate's economic development. The South West Africa Company continued trading even after Germany lost its colonies, including South West Africa, post-World War I.

1900: Otavi Minen and Eisenbahn-Gesellschaft (OMEG)

Otavi Mining and Railway Company

The Otavi Mining and Railway Company (OMEG) was founded in Berlin in 1900 to construct the Otavi railway, engage in copper mining, and conduct smelting activities in South West Africa. Dr. Julius Scharlach, the founder of the South West Africa Company, played a key role in its establishment. Owned by a consortium of banks, entrepreneurs, and Dr. Julius Scarlet Fever, OMEG aimed to build a railway connecting Swakopmund and Tsumeb, smelt copper ore, and transport the raw copper for shipping on behalf of the South West Africa Company.

OMEG went public on the London Stock Exchange in 1904 to raise additional funds and completed the construction of the Otavi Railway in March 1906, connecting Swakopmund to Tsumeb over 567 km. The line became operational on November 12, 1906, under OMEG's management. The company also operated a branch line (Otavi-Grootfontein), completed in 1908, which continued even after nationalisation.

> Newmont's long history dates back to the 20th century and is closely connected to major industrial milestones. Colonel William Boyce Thompson founded Newmont in 1916 as a holding company for acquisitions of oil, gas, mining, and minerals.

OMEG oversaw the mining operations in Great Otavi, Little Otavi, Guchab, and Tsumeb.

It managed recruitment, technical expansion, and the construction of facilities for employee accommodation. Under South Africa's mandate after 1919, OMEG continued activities but lost assets, land, and buildings in South West Africa during World War II. Gustav Adolf Schatz, the last director, retired in 1947 when confiscated assets were sold without compensation. OMEG retained its original name until 1976 and continued international business with mineral raw materials under different names and shareholdings.

1947: Newmont forms Tsumeb Corporation Ltd

Newmont's long history dates back to the 20th century and is closely connected to major industrial milestones. Colonel William Boyce Thompson founded Newmont in 1916 as a holding company for acquisitions of oil, gas, mining, and minerals.

Listed on the New York Stock Exchange since 1940, Newmont has been a key player in the natural resources industry for almost a century, involved in mining various resources and venturing into oil and gas. As one of the few companies listed on the NYSE since 1940, Newmont continues to provide value to shareholders, employees, and communities.

In the mid-20th century, Newmont expanded by acquiring the Tsumeb copper-lead-zinc mine and Palabora, a South African copper mine. The Tsumeb Corporation Ltd., established in 1946, managed the Tsumeb Copper Mine under Newmont's leadership.

The Tsumeb Smelter Complex, commissioned in 1963, played a crucial role in Newmont's operations, producing copper, lead, cadmium, arsenic trioxide, and, by 1986, sodium antimonite for export. Operations expanded with the acquisition of Kombat, Otjihase, and Khusib Springs and the restart of Kombat in 1962, a year before copper and lead smelting began at Tsumeb.

> The Otavi Minen und Eisenbahn Gesellschaft started mining at the Gross Otavi in 1909. Mining operations were extended to the Kombat area in 1911. At the time, there was limited surface production and some underground activities. In 1925, the first flood happened, affecting underground shafts.

Gold Fields South Africa

In 1988, Gold Fields South Africa took over the Tsumeb Corporation Ltd, which Gold Fields Namibia managed.

In 1996, two years after a decline in copper prices, a workers' strike halted operations at the mine. The workers blocked services, flooding a mine shaft. Goldfields had to cease operations and went into liquidation in 1998.

Ongopolo Mining & Processing

Ongopolo Mining & Processing Limited acquired Tsumeb Corporation assets - Tsumeb, Kombat, Otjihase, Khusib Springs, and the smelter - in March 2000. The Tsumeb Mine was renamed Ongopolo Mine.

The company wanted to reopen the Kombat Mine and develop and rehabilitate the Otjihase Mine.

Weatherly International

Ongopolo's assets were transferred to Weatherly International in July 2006. Weatherly did not reopen the Tsumeb Copper Mine. However, Weatherly opened the Tsumeb West Mine.

In 2010, Weatherly sold the Tsumeb Smelter to Dundee Precious Metals.

Instead, Weatherly focused on the Tsumeb West Mine, which produced copper and vanadium. In 2008, when copper prices declined, Weatherly closed the Tsumeb West Mine.

Kombat

The Otavi Minen und Eisenbahn Gesellschaft started mining at the Gross Otavi in 1909. Mining operations were extended to the Kombat area in 1911. At the time, there was limited surface production and some underground activities. In 1925, the first flood happened, affecting underground shafts.

Otavi Minen und Eisenbahn Gesellschaft stopped operations in 1941, and Tsumeb Consolidated Limited, under the Newmont Corporation, bought the mine in 1947 and explored the Kombat property throughout the 1950s. In 1962, Tsumeb Consolidated Ltd started operations, milling 680 tonnes daily. By 1981, Kombat had produced 8.8 million tonnes of ore grading 2.74% Cu, 1.67% Pb and 22 g/t Ag.

The South African company Gold Fields took over TCL's administration in 1987, and a year later, Kombat Mine flooded. The flood became periodic, affecting other parts of the mine.

The mine changed hands in 1999 when Ongopolo Mining and Processing Limited bought the assets from the liquidated TCL. In 2000, Ongopolo Mining and Processing Limited also took over Tsumeb Mine and Khusib Springs.

Weatherly International came onto the scene in 2006, buying Ongopolo Mining and Processing and all its assets, which were then transferred to Ongopolo Mining Ltd.

Two things happened in 2008 – the third flooding and the decline in the price of copper. This time, Ongopolo Mining had no choice but to close the mine.

Grove Mining, a South African company, took over in 2009, but in 2012, it was ready to sell to Manila Investments, which transferred ownership to Kombat Copper.

Manila Investments, owned by businessman Knowledge Katti's Havana Investments and Epangelo, acquired 10% each of Kombat Copper.

On 28 December 2016, Kombat Copper changed its name to Trigon Metals, while Manila Investments also changed its name to Trigon Mining (Namibia) (Pty) Ltd, a Trigon Metals subsidiary, in 2018. Trigon Mining (Namibia) (Pty) Ltd holds the Kombat licences.

Future of possibilities

Consolidated Copper Corp talks about reviving three copper mines.

Private company led by John Sisay to revive Tschudi, Otjihase, Matchless and Berg Aukas mines

Seychelles domiciled Consolidated Copper Corp plans to resume production of refined LME grade copper cathode at Tschudi during 2024 from existing ore stockpiles and is undertaking engineering studies into a restart of mining from the existing open pit.

The company also wants to restart Matchless, Otjihase copper mines, and Berg Aukas zinc mine. The mines have been under Mr Sisay's stewardship since 2018, when the Bonohgroup took over from Weatherly Namibia Ltd.

To secure funding for the restarts, Mr Sisay partnered with a group of fellow mining executives experienced in developing large scale mines in Africa Consolidated Copper Corp (CCC) in 2022. CCC took over the mines in March 2023 when the Competition Commission approved the deal.

> Consolidated Copper is investing in extensive pre-feasibility research to determine the most suitable and value-adding course for Berg Aukas's future restart activities.

Tschudi Copper Mine

To support its restart plan Consolidated Copper is utilising the substantial existing infrastructure already in place capable of producing refined LME grade copper cathode.

Exploration and development work at the Tschudi copper mine has revealed resource of 51 Mt.

The Tschudi copper mine is 20km west of the township of Tsumeb within the Otavi Mountain Land.

Weatherly's subsidiary, Ongopolo, operated Tschudi after receiving environmental approval in 2013.

The mine produced its first copper cathode in early 2015 at a nameplate production rate of 1400t per month (17,000 tpa).

Tschudi encountered structural problems with flooding and metallurgical issues, resulting in a production downgrade.

The mine's former parent company went into administration in 2018, and its administrators appointed John Sisay, the CEO of Consolidated Copper, to manage it. In 2020, all operations at Tschudi were placed on care and maintenance to develop a new long life mine plan.

Consolidated Copper says it has completed further geo-metallurgical and historic drill tests at Tschudi, which revealed more copper available at a deeper depth, extending the mine's life from three towards the Company's target of 10 years or more.

> Historical resource reports indicate the mine to host high-grade 13% zinc and 3% lead. CCC is in the process of validating these historical estimates and also an oxide cap on the adjacent hill, which has not been touched in recent years. There is also the possibility of reprocessing historical high-grade waste deposited in the tailings dam.

The company is evaluating the potential for construction of a concentrator at Tschudi to increase the mine life and output of contained copper.

Current works at Tschudi have extended to assaying for copper, iron, sulphur, and calcium to better delineate ore zones through advanced grade control drilling.

Matchless and Otjihase

Consolidated Copper says it has recruited an ex-Glencore underground mining specialist to focus on developing a 10-year mine plan for Central Operations—Matchless and Otjihase mines.

Consolidated Copper has valid mining licences, environmental clearance certificates, and all other required permits to restart mining at the Otjihase and Matchless mines.

Otjihase was in production until September 2015, when its then-operator placed it into care and maintenance.

At Otjihase, Consolidated Copper is evaluating capital expenditure required to restart the Otjihase mine.

Consolidated Copper is evaluating the potential to produce 10–12 ktpa of copper in concentrate for the next 10 years.

The company targets fresh exploration of the sites to determine their potential and to drill new ore blocks within developed areas, targeting 5Mt.

Consolidated Copper's focus at Otjihase is to drill the western margin of the orebody at Tigerschulcht.

Matchless has been in care and maintenance for about 30 years.

Drilling is underway at Matchless West to determine the likelihood of a further oxide resource after the mine site floods.

Consolidated Copper says there is copper underneath. The company is undertaking metallurgical test work to identify ore sorting processes that remove 65% of waste and to explore the possibility of introducing a smaller-scale concentrator if this is beneficial.

The Matchless West mine has been mined to level 24, and Consolidated Copper is evaluating opportunities to extend the operation at depth and commence extraction of adjacent surface outcrops.

Consolidated Copper says exploration results indicate that three more outcrops have been discovered. Drilling of these outcrops is currently underway and results will be used to update the resource estimate for Matchless which is currently 1.7Mt at 1.97% Cu.

Berg Aukas

Historical resource reports indicate the mine to host high-grade 13% zinc and 3% lead. CCC is in the process of validating these historical estimates and also an oxide cap on the adjacent hill, which has not been touched in recent years. There is also the possibility of reprocessing historical high-grade waste deposited in the tailings dam.

Consolidated Copper is investing in extensive pre-feasibility research to determine the most suitable and value-adding course for Berg Aukas's future restart activities.

Berg Aukas's zinc-lead-vanadium deposit was discovered in 1913. From 1920 to 1978, the mine was operational in varying capacities.

Berg Aukas was last mined during the 1970's and has been under care and maintenance since this time. Consolidated Copper took over the management of the assets in mid-2022.

Future work for Berg Aukas will include assessing marketing and exploration opportunities.

A PFS of the Berg Aukas mine, last updated in 2018, has identified a variety of minerals below the surface. At 1.26 mt, there is 15.47% zinc and 3.84% lead.

There is potential for a 10+ year life of mine.

The Berg Aukas mine is near Grootfontein, about 100km southeast of the Tschudi copper mine site and the Otavi Mountain Range.

The Berg Aukas mine opened in the 1920s and was significantly operational from 1958 to 1978.

From 1967 to 1978, it was reported that 2.3Mt of material at 15.0% zinc, 3.9% lead, and 0.85% vanadium oxide were hoisted from the mine, and, of this, 1.5Mt of ore at 21.5% zinc, 5.5% lead, and 1.23% vanadium oxide were milled. The mine closed in 1978, with significant resources remaining unexploited.

Extractor Magazine Vol.1 Edition 9

Central Operations

Timeline

1855: Matchless Mine is opened by the Walwich Bay Mining Company.

1860: Walwich Bay Mining Company suspended operations at Matchless Mine.

1967: Matchless mining grant was purchased, and development recommenced.

1970: Matchless Mine production recommences.

1976: No. 2 circuit of the copper smelter commenced smelting concentrates from Otjihase Mine.

1982: The copper smelter's No. 2 circuit resumes smelting concentrates from the reopened Otjihase Mine. The lead smelter was converted to a single-blast furnace operation.

1983: Matchless Mine closed down and was placed on care and maintenance.

1984: The copper smelter changed over to one reverberatory furnace operation.

1985: Matchless Mine closed indefinitely and was allowed to flood.

2008: In December, Otjihase and Matchless mines were placed on care and maintenance.

2011: Central Operations, Matchless, and Otjihase reopen, and copper production starts again.

Extractor Magazine Vol.1 Edition 9

It took 68 years for Newmont's subsidiary, Tsumeb Corporation Limited, to revive the Matchless Mine in 1967. In 1983, Tsumeb Corporation suspended operations at Matchless Mine and placed it on care and maintenance. The corporation allowed Matchless Mine to flood in 1985.

Central Operations refers to Matchless and Otjihase mines just outside Windhoek.

The Matchless Mine started operating in 1855 under the Walwich Bay Mining Company. The Tsumeb Corporation Limited discovered the Otjihase deposit in 1970, with mining operations beginning in 1976.

The Walwich Bay Mining Company was founded in Cape Town in September 1854, and the Great Namaqua Mining Company was founded in October 1854—the two companies aimed to exploit copper deposits in then-South West Africa.

Most of the mining companies relied on missionary accounts of the situation regarding mining. At the time, missionary accounts indicated some copper mining activities at Matchless Mine that involved Damara smiths around the 18th and 19th centuries.

Archaeological material from the Matchless area dates back 400 years.

The Walwich Bay Mining Company and the Great Namaqualand Mining Company brought equipment via Walvis Bay around March 1955. Eight men came in. Their first call was to Chief Swartbooi's compound at Klein Aub, about 90km from Rehoboth, where they agreed to start mining copper.

Walwich Bay Mining Company's headquarters were at Otjimbingwe, where the copper ore was transported to the Port of Walvis Bay. The company needed to mine more copper ore to sustain operations.

It stopped operations in 1860 and sold off its assets, except the mine, to a Swedish explorer and trader, Charles John Andersson.

No European companies carried out mining activities at Matchless for 42 years. In 1902, a company linked to the Deutsche Kolonialgesellschaft (German Colonial Society for South West Africa) tried but could not find any copper ore, so it abandoned the mine.

It took 68 years for Newmont's subsidiary, Tsumeb Corporation Limited, to revive the Matchless Mine in 1967. In 1983, Tsumeb Corporation suspended operations at Matchless Mine and placed it on care and maintenance. The corporation allowed Matchless Mine to flood in 1985.

Weatherly International, under Weatherly Mining Namibia, became the 97.5% interest holder in Ongopolo Mining in 2006 before selling off 2.5% to the National Union of Namibian Workers in 2011.

When Weatherly acquired Matchless, the mine was semi-operational and needed major upgrades.

Otjihase, too, needed a lot of work, but after the rehabilitation, both mines produced 462 442 tonnes of ore, grading 1.15% copper, 5.5% grams per tonne of silver, and 0.3 grams per tonne of gold.

In 2008, Weatherly stopped operations at Matchless and Otjihase following the dramatic collapse in copper prices.

Weatherly said it would still bring Matchless and Otjihase mines into production as one of its immediate plans.

In 2009, Weatherly reopened the two mines after receiving an equity subscription from the East China Exploration and Development Bureau. Shali Mining became the operating contractor.

The continuous decline in copper prices did not help, and Weatherly announced the mines' closure in September 2015.

Weatherly CEO Craig Thomas said global copper prices had fallen by over 40% since 2011.

Extractor Magazine Vol.1 Edition 9

Tsumeb Copper Mine

The South West Africa Company discovered the Tsumeb Copper Mine in 1892. The Tsumeb Mine was one of the world's major copper producers, with a historic resource of 27Mt at 4.3% Cu, 10% Pb, 3.5% Zn, and 95g/t Ag.

The South West Africa Company, known as the Südwestafrikanische Gesellschaft, was founded in August 1892 in South West Africa (now Namibia), a German colony.

The German Colonial Society for South West Africa could not attract enough interested businesspeople to invest in the colony. Some German and British businesspeople formed the South West Africa Company, which had its headquarters in London. The company acquired a mining concession in Damaraland in August 1892.

The English explorer Sir Francis Galton was the first European to report the presence of copper in the Otavi Mountain Land in 1851, long after the Hai||om San Bushman were already mining copper in the Otavi Mountain Land. The San Bushman sold the copper to the Hereros, who smelted and sold it to the Ndonga people.

According to European accounts, the San Bushmen called the place Tsomsoub (to dig a hole in the loose ground that keeps collapsing), and the Nama called it Tsumeb (place of the green rock or hill).

Although the San Bushman and others initially resisted, the South West Africa Company convinced them later and acquired the rights to the hill.

An expedition sent by the South West Africa Company in 1892 studied the Tsumeb copper outcrop, and an English geologist, Mathew Rogers, conducted

the first survey in 1898, confirming the presence of a copper deposit.

The South West Africa Company sold the concession to the Otavi Minen and Eisenbahn-Gesellschaft in 1900. The area was 2590km2. By 1905, a settlement - present-day Tsumeb - had taken shape. In 1908, the Otavi Minen and Eisenbahn-Gesellschaft started operations at the Kombat mine, and they operated until 1925.

The Otavi Minen and Eisenbahn-Gesellschaft constructed a railway line and a water pipe. Then, World War I came, leading to the closure of the Tsumeb mine in 1915. Operations started in 1921, peaking by 1930 before the mine was shut again in 1932 due to the 1929 economic depression.

The mine reopened in 1937, but South Africa's Custodian of Enemy Property took over in 1939 before it stopped operating in 1940.

When the war ended, US companies Newmont Mining Corporation (founded in 1921) and American Metal Company bought the mine for US$4 million. The companies formed Tsumeb Corporation Limited, which started operations at the Tsumeb mine in 1947.

Between 1947 and 1988, Tsumeb Corporation acquired Kombat, Otjihase and Khusib Springs. In 1962, the company constructed the Tsumeb Copper Smelter. The corporation also restarted operations at Kombat in 1962, a year before copper and lead were smelted at Tsumeb.

Newmont sold its assets to Goldfields Namibia in 1988. Two years later, copper prices declined. The mine, however, operated until 1996, when workers went on strike. The workers blocked any services, resulting in the

flooding of a mine shaft. Goldfields had to stop operations and went into liquidation in 1998.

Ongopolo Mining & Processing Limited acquired Tsumeb Corporation assets - Tsumeb, Kombat, Otjihase, Khusib Springs, and the smelter - in March 2000. The company wanted to reopen the Kombat Mine and develop and rehabilitate the Otjihase Mine. The Tsumeb Mine was renamed Ongopolo Mine.

When Weatherly International bought off Ongopolo in 2006, there were no plans to reopen the Tsumeb Mine. Instead, Weatherly focused on the Tsumeb West Mine, which produced copper and vanadium. In 2008, when copper prices declined, Weatherly closed the Tsumeb West Mine.

Weatherly Namibia CEO Rob Webster said there were no plans to reopen the Tsumeb Mine, although there were plans to revive the Tsumeb Tailings.

A former Tsumeb Corporation managing director, Andre Neethling, discussed reopening the Tsumeb copper mine in 2015.

According to media reports, Neethling said it would take 18 months and N$20m to get the mine back into production. He said the Tsumeb mine still had about 6,3% copper.

Neethling also worked for Ongopolo when it established the Tschudi copper mine, B2Gold and Ohorongo cement project.

Haib Copper

Koryx Copper (Formerly Deep-South) holds 100% of the Haib Copper deposit south of Namibia. Haib is arguably the oldest porphyry deposit in the world and one of the largest in Africa.

The preliminary economic assessment indicates a life-of-mine of 24 years, throughput of 20 million tonnes a year, and estimated recovery at 80%. Production is estimated at 35 332 tonnes per year of copper cathode and 51 081 tonnes per year of copper sulphate.

The Haib deposit has a distinct surface expression with abundant copper staining on fractures and joint planes, particularly in and around the dry riverbed of the Volstruis River.

This led to German prospectors identifying the deposit around the late 1800s or early 1900s. Small tonnages of high-grade copper carbonate ore were mined at this time.

Extractor Magazine Vol.1 Edition 9

It was concluded that the increase in the copper price since the 1970s, the development of low-cost/ high tonnage mining systems and new and refined technologies such as bacterial leaching, solvent extraction and electro-winning combined to create a situation where the development of the Haib deposit could represent an economic project; however, no further exploration work was done and appointment terminated in 1995.

After World War II, the prospect was pegged as claims by prospector George Swanson, who carried out small-scale mining and tank leaching operations.

Over 6,000 tons of hand-sorted high-grade copper ore, reportedly at grades of up to 18% copper, were sold to the O'okiep Copper Mines across the border at Nababeep in South Africa.

In 1963 – 1964, Falconbridge completed a more detailed exploration programme looking at the higher-grade zones within the Haib deposit. They drilled eleven diamond drill holes, totalling 1,012 metres of drilling. The drill hole intersections' average grade was 0.33% Cu.

During 1968 – 1969, King Resources of South Africa Pty Ltd conducted a diamond drilling programme of 21 holes totalling 3,485 metres. They examined both lower and higher-grade sulphide zones, as well as the higher-

grade oxide shear zones.

From 1972 to 1975, Rio Tinto Zinc conducted the first extensive and systematic investigation of the Haib deposit. Geochemical and chip sampling surveys, along with IP and Resistivity surveys, were conducted. One 120-diamond drill hole totalled 45,903 metres.

The cores from this programme are still intact and stored in a core shed on site. RTZ was sampled by compositing half bodies over 2-metre intervals and submitted these to determine total copper and, where appropriate, oxide copper (acid-soluble copper).

Composite samples from each drill hole were also tested metallurgically to determine recoverable copper. They were assayed for molybdenum, silver and gold, indicating average contents of 25 g/t Mo, 0.01 g/t Au, and 0.9 g/t Ag.

Tonnage and grade estimates at various cut-offs were made, and a conceptual pit design was proposed.

In November 1993, Rand Merchant Bank Ltd of South Africa acquired an option over the Haib property. Venmyn Rand Pty Ltd. produced a study of the project, including a compilation of all the available drill hole and assay records from previous investigations and set up a computerised drill hole database.

It was concluded that the increase in the copper price since the 1970s, the development of low-cost/high tonnage

mining systems and new and refined technologies such as bacterial leaching, solvent extraction and electro-winning combined to create a situation where the development of the Haib deposit could represent an economic project; however, no further exploration work was done and appointment terminated in 1995.

In March 1995, Great Fitzroy Mines NL and RMB George Swanson signed a Namibian Copper Joint Venture.

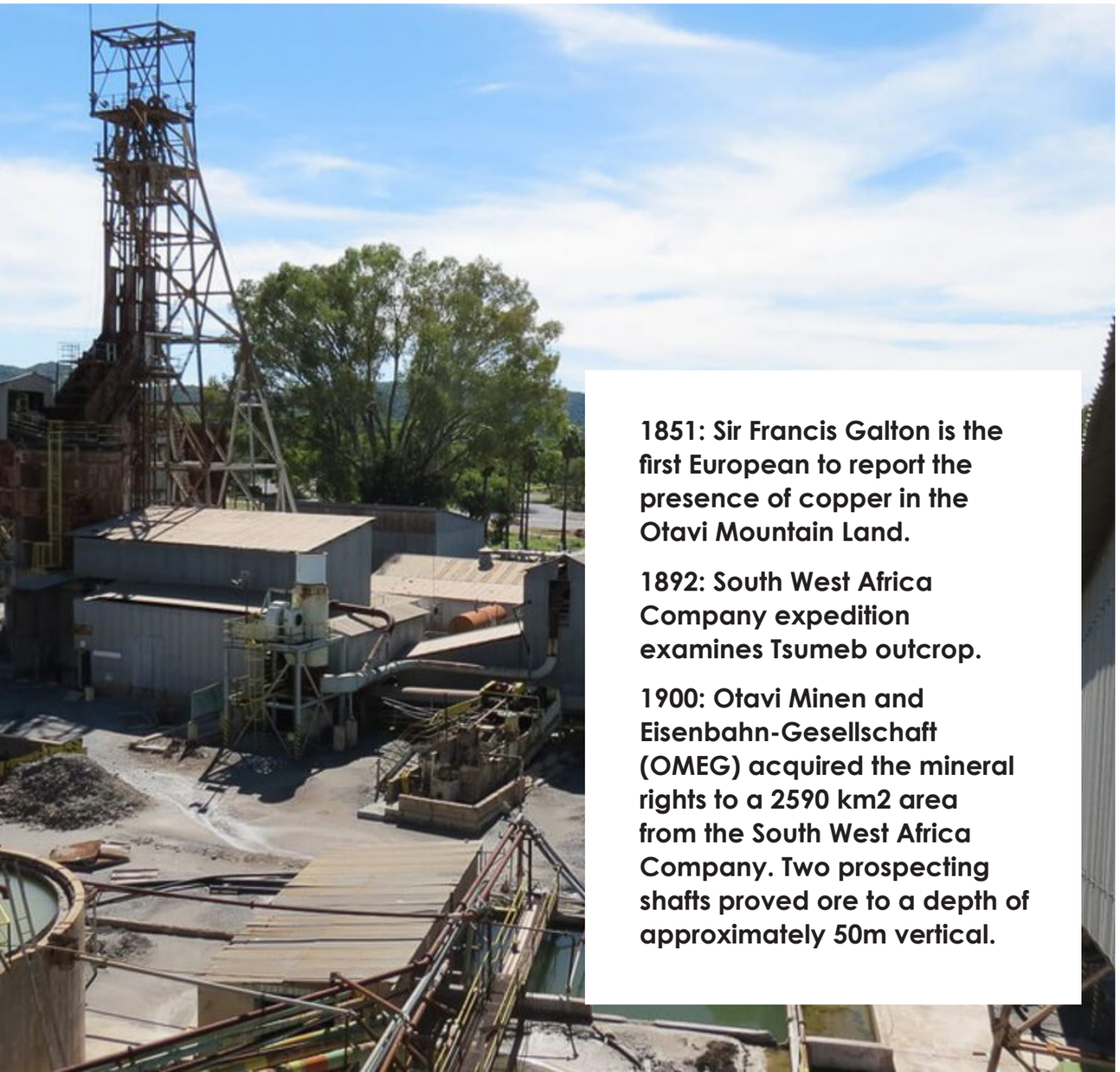
From 1995 to 1999, NCJV drilled 12 infill holes, drilled five geotechnical investigation holes, completed 126 metres of excavation in an adit and two crosscuts for bulk sampling and metallurgical testing and carried out various test works, including mining cost audits, bio-leaching studies, and milling and grinding studies. NCJV ran into financial difficulties, and work was stopped at the Haib deposit in early 1999.

In 2004, Koryx Copper (Pty) Ltd (Koryx Copper) was granted the Exclusive Prospecting Licence 3140 (EPL) over an area of 74,563.0 ha covering the deposit and a vast surrounding area. This was subsequently renewed in April 2007, 2009, 2011, 2013 and 2015, reducing the size to 37,000ha after the 2007 renewal.

From 2008, Teck, under the option Agreement with Deep-South Resources, completed a comprehensive exploration programme at the Haib and its immediate surroundings.

Extractor Magazine Vol.1 Edition 9

Kombat



1851: Sir Francis Galton is the first European to report the presence of copper in the Otavi Mountain Land.

1892: South West Africa Company expedition examines Tsumeb outcrop.

1900: Otavi Minen and Eisenbahn-Gesellschaft (OMEG) acquired the mineral rights to a 2590 km2 area from the South West Africa Company. Two prospecting shafts proved ore to a depth of approximately 50m vertical.

1908: OMEG commences operations at the Kombat mine.

1947: TCL, under the administration of Newmont, bought the mineral rights, physical assets and farms from Custodian of Enemy Property.

1962: Kombat started milling at 680 tonnes per day.

1998: TCL was placed in voluntary liquidation.

2000: OMPL assumed control of TCL assets and commenced production from Tsumeb Mine, Kombat Mine, and Khusib Springs.

2006: Weatherly takes over OMPL after restructuring its debt and environmental obligations.

The Kombat Copper Project comprises five mining licenses over 1,216.7 ha. Three mining licences, 9, 16, and 73B share a border, while mining licence 73A is for the Gross Otavi, and mining licence 21 covers the Harasib Property.

The Project is a collective term for the licence areas, infrastructure and deposits that include Gross Otavi, Asis (including the Kombat Central, Kombat West and Kombat East deposits), Asis Far West (including the Asis West, Asis Far West and Asis Gap deposits) and Asis Ost.

Francis Galton was born in Birmingham, England, in 1822. His parents wanted him to study medicine. They allowed him to visit hospitals as part of their plan. Galton later trained at London and Birmingham hospitals.

But he had other ideas - travelling the world. He started visiting Germany for chemistry lessons at the University of Giessen. He went to southeastern Europe from Germany before returning to England to attend Trinity College in Cambridge.

Galton did not graduate and moved to London to resume his studies. Then his father died, and Galton, who inherited some fortune, abandoned his medical studies.

Between 1845-46, Galton and some friends travelled along the Nile River. Later, he ventured into southwestern Africa, looking for Lake Ngami. This trip saw him in the land now called Namibia.

In 1851, while in the land now called Namibia, Galton stumbled upon copper in the Otavi Mountain land. This area is what is known today as the Kombat Mine.

The South West Africa Company Limited (Südwestafrikanische Gesellschaft), formed in August 1892, was granted rights over land and minerals in the 13,000m2 Damaraland Concession.

In 1909, Otavi Minen and Eisenbahn-Gesellschaft (OMEG) acquired the mineral rights to a 2 590 km2 area from the South West Africa Company.

Extractor Magazine Vol.1 Edition 9

COPPER FIELDS

The Otavi Minen und Eisenbahn Gesellschaft started mining at the Gross Otavi. Mining operations were extended to the Kombat area in 1911. At the time, there was limited surface production and some underground activities. In 1925, the first flood happened, affecting underground shafts.

Otavi Minen und Eisenbahn Gesellschaft stopped operations in 1941, and Tsumeb Consolidated Limited, under the Newmont Corporation, bought the mine in 1947 and explored the Kombat property throughout the 1950s. In 1962, Tsumeb Consolidated Ltd started operations, milling 680 tonnes daily. By 1981, Kombat had produced 8.8 million tonnes of ore grading 2.74% Cu, 1.67% Pb and 22 g/t Ag.

The South African company Gold Fields took over TCL's administration in 1987, and a year later, Kombat Mine flooded. The flood became periodic, affecting other parts of the mine.

The mine changed hands in 1999 when Ongopolo Mining and Processing Limited bought the assets from the liquidated TCL.

Weatherly International came onto the scene in 2006, buying Ongopolo Mining and Processing and all its assets, which were then transferred to Ongopolo Mining Ltd.

Two things happened in 2008 - the third flooding and the decline in the price of copper. This time, Ongopolo Mining had no choice but to close the mine.

Grove Mining, a South African company, took over in 2009, but in 2012, it was ready to sell to Manila Investments, which transferred ownership to Kombat Copper.

Manila Investments, owned by businessman Knowledge Katti's Havana Investments and Epangelo, acquired 10% each of Kombat Copper.

On 28 December 2016, Kombat Copper changed its name to Trigon Metals, while Manila Investments also changed its name to Trigon Mining (Namibia) (Pty) Ltd, a Trigon Metals subsidiary, in 2018. Trigon Mining (Namibia) (Pty) Ltd holds the Kombat licences.

Trigon Metals also holds EPL 3540 through its subsidiary Gazania Investments Nine (Pty) Ltd. EPL 3540 covers 5,614ha and shares the borders with mining licences 16, 73B and 73C.

In October 2021, Trigon Metals started operations at Kombat after a 14-year hiatus. The company wanted to produce 4,000 tonnes of copper concentrate by 2022 and 14,000 tonnes in 2024.

The company estimated that the mine's total resources had increased by 456% in 2020 to stand at 18 million tonnes in the open pit and another 20 million tonnes underground.

A feasibility study conducted in 2018 estimated that Trigon Metals would need US$6,4m to restart operations, including US$ 44.7 m to repair the plant.

Tschudi

The Tschudi Copper Mine is about 20km from Tsumeb in the Oshikoto region. It is on farms Tschudi 461 and Uris 481, covering 729.7871ha.

As of December 2019, the Tschudi mine is estimated to contain ore reserves of 15.6Mt at 0.89% Cu for 138.2kt and mineral resources of 51.0Mt at 0.76% Cu for 387.7kt.

Tschudi's current life of mine (LOM) plan says ore mining could continue until July 2024 and production from the heap leach until December 2025. Over the entire lifespan, about 175,000 tonnes of cathode copper are expected to be produced.

Ongopolo Mining received licence 125 in October 2002, expiring in 2032. In 2006, Weatherly International acquired Ongopolo Mining's assets, including the Tsumeb copper smelter and the Central Operations mines - Otjihase and Matchless.

Weatherly borrowed US$11,3m from Dundee Precious Metals' subsidiary Chelopech Mining and Louis Dreyfus Commodities Metals Sussie SA in 2008.

Chelopech provided US$7m to Weatherly's subsidiary Namibian Custom Smelter, which operated the Tsumeb smelter, to fund the expansion and ongoing requirements to meet the costs of placing the Otjihase, Matchless and Tschudi mines on care and maintenance.

Weatherly sold the Tsumeb copper smelter to Dundee Precious Metals in 2010.

Weatherly also received a loan of US$91m from Orion in September 2013 to construct the Tschudi mine. The loan was supposed to be repaid by cash flow from Tschudi.

In 2014, Weatherly started constructing the Tschudi mine and produced the first copper in February 2015. At its peak, Tschudi produced 17.000 tonnes of copper per annum.

In 2020, Weatherly closed the Tschudi mine

after failing to repay the Orion loan, which had grown to US$140m. Besides the Orion loan, the global copper prices also did not help.

Although Tschudi was placed under care and maintenance, a 2022 drilling programme extended the mine's life to 12 years.

Consolidated Copper Corp

When Weatherly could not find a buyer for Tschudi mine, the administrators Simon Kirkhope and Andrew Johnson accepted the Bonohgroup offer to buy shares in WNSL, China Africa Resources Namibia Holdings Limited and China Africa Resources Namibia, which held shares in Berg Aukus and Weatherly Namibia SL (St Lucia), which, through Ongopolo Mining Ltd, held the Tschudi mine, Central Operations and the Tsumeb township concentrator.

The contracts were exchanged in July 2020, and in September 2020, the shares were sold to Bonohgroup, which was linked to John Sisay, who was connected to Weatherly International.

In March 2023, the Namibian Competition approved the acquisition by Consolidated Copper Corp of Bonohgroup shares in Weatherly (Namibia SL). Bonohgroup held the shares through Bonohgroup Namibia Limited and China Africa Resources Namibia.

Consolidated Copper Corp (CCC) was founded in 2022 by a group of value-driven mining executives – with a proven record of developing and operating large-scale mines in Africa.

African Pioneer

The Ongombo Project

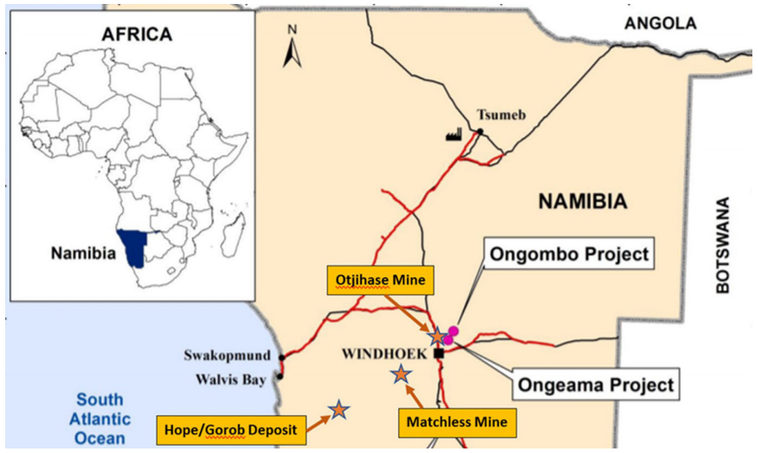
African Pioneer explores base and precious metals in

Sub-Saharan Africa, focusing on base and precious metals including but not limited to copper, nickel, lead and zinc in Namibia, Zambia and Botswana. The company is incorporated and registered in the Isle Of Man.

In Namibia, African Pioneer's subsidiary is Zamcu Exploration, which owns 70% of Manmar Investments One Hundred and Twenty-Nine for the Ongombo Project.

Zamcu owns 70% of Manmar Investments One Hundred and Thirty-Six for the Ongeama Project.

Initially, African Pioneer had a 55% shareholding, which increased in



August 2021 when it acquired 30% through its Namibian subsidiary Zamcu Exploration, from Manmar Investments One Hundred and Twenty-Nine (Pty) Ltd and Manmar Investments One Three Six (Pty) Ltd in August 2021.

The mines ministry granted African Pioneer a 20-year mining licence in September 2022, and the environment ministry granted the clearance certificate in April 2023, valid until April 2026.

In Botswana, African Pioneer owns the Resource Capital Partners, and in Zambia, it is a 100% owner of African Pioneer Zambia.

Background

The Ongombo project is situated in Exclusive Prospecting License (EPL) 5772 in the Khomas region of the Windhoek District of Namibia, 45 km from Windhoek, the capital of Namibia. The project area has relatively well-developed infrastructure on the Ongombo Ost and Ongombo West farms. The property is easily accessed by a tar road from Windhoek to Gobabis and then on a gravel road up to the project area. A railway line from Gobabis to Walvis Bay via Windhoek is parallel to the tarred road. The Ongombo Project is located 15km northeast of Otjihase Mine, which consists of two underground mines (Otjihase and Matchless) and an 800ktpa copper concentrator.

The Ongombo project lies within the Matchless Member of the Kuiseb Formation, a conspicuous assemblage of lenses of foliated amphibolites, chlorite-amphibolite schist, talc schist and metagabbro. This belt, up to 5km wide in the Otjihase area, stretches 350km east-north-eastwards in the Southern Zone of the Damara Orogen from the Gorob–Hope area.

The deposit is generally described as a Besshi-type massive sulphide. These are thin sheet-like bodies of massive, well-laminated pyrite, pyrrhotite, and chalcopyrite within thinly laminated clastic sediments and mafic tuffs.

At the Ongombo project, mineralisation occurs in one continuous zone approximately 7 km long and 0.5 – 1 km wide.

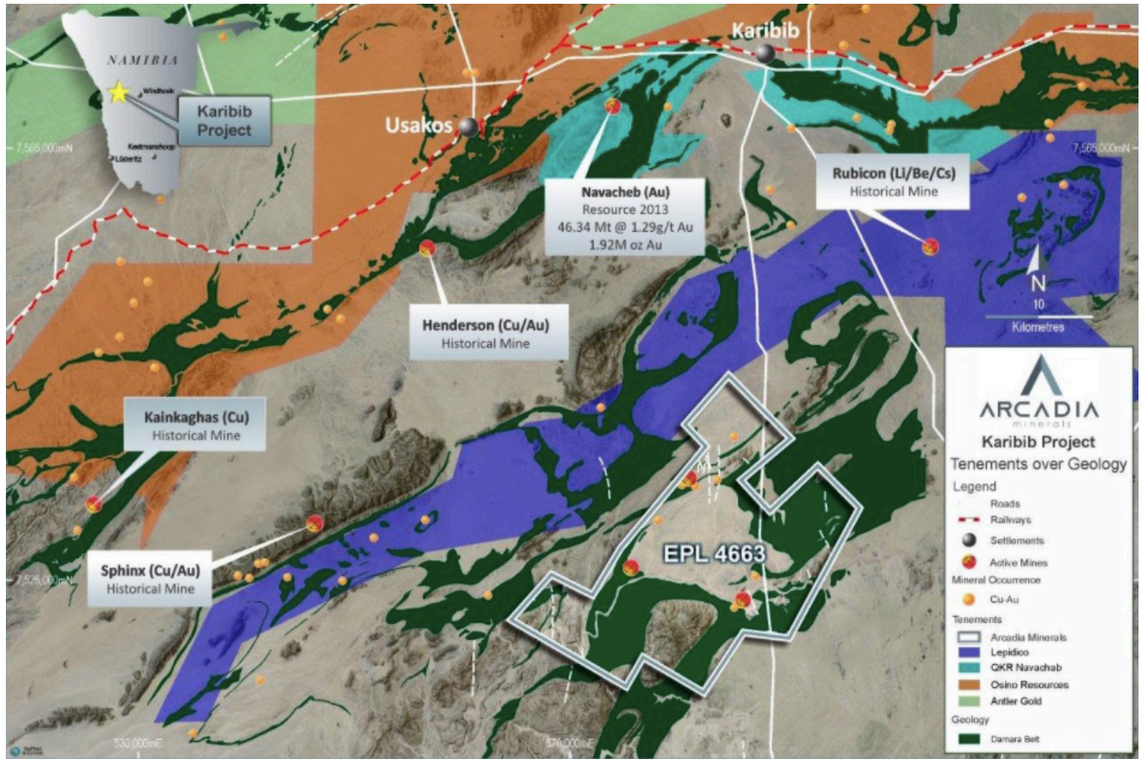
The mineralisation zone dips consistently 15-20° northwest and plunges 5° northeast. Mineralisation is gradually thinning westward.

In 2021, the Shali Group sold 85% of the equity in the Licence to African Pioneer PLC; African Pioneer are now managers and funders of the License, and the Shali Group are County Managers for African Pioneer. In September 2021, a Scoping Study was completed by consultants Practara Pty Ltd and was based on a Mineral Resource Estimate undertaken by consultants Red Bush Geoservices. The Scoping study proposed mining entirely by underground mining and assumed a minimum mining height of 1.05 m with access via twin declines. Alternative mining scenarios have been considered in this Resource update.

The pending renewal application for EPL 5772, which expired on 8 March 2023, is now reflected on the Namibian Mines and Energy Cadastre Map Portal and is for an additional two-year extension. A conditional Environmental Clearance Certificate for mining activities was granted on EPL 5772 and is valid until 16 April 2026.

A 20 Year Mining Licence, ML 240, was granted on 10 August 2022 and covers a portion of EPL 5772 and approximately one-third of the open pit resource. An extension to the Mining Licence was submitted on 6 September 2022 to encompass the more comprehensive resource area.

Arcadia Minerals



Arcadia Minerals has several lithium assets in Namibia and is exploring the Karibib copper project, which also contains significant gold exploration potential. The Karibib Project under the EPL 4663 covers some 40 986ha. The project is about 45km south of Karibib town in the Erongo region.

Goas Pegmatite Exploration owns the Karibib copper project. Goas is 85% owned by the Karibib Pegmatite Exploration, an 80% Arcadia Minerals-owned subsidiary.

Background

EPL 4663 is within the same mineralisation zone and shares striking geological similarities with the Navachab Gold Mine and Osino's Twin Hills deposit.

Osino's success arises from their efforts to re-explore portions of the Kalahari Gold Field covered by their exclusive prospecting licenses. Companies such as Goldfields, Anglo American, and various junior explorers historically explored these areas and EPL 4663 during the 1980s.

These early explorers did not benefit from sophisticated modern exploration equipment and techniques such as those used by Osino in making its recent discoveries.

Goas has re-evaluated historical exploration results and incorporated modern-day geospatial datasets over EPL 4663. This re-evaluation produced new geological perspectives and indicated significant potential for further detailed exploration.

From the investigation, Goas discovered a Northeast-Southwest trending, 1 to 2.5 km wide and 20 km long structural feature corresponding with known mineralisation and with historical base- and precious-metal soil and stream geochemical anomalies.

Limited historical and current reconnaissance rock-chip and channel sampling of exposed mineralisation within the newly identified structural feature has yielded significant results, which suggest that an epigenetic Cu-Ag-Au-W skarn- and polymetallic replacement vein-type mineralisation system is present along its extent.

Eight rock-chip samples were collected in the southwestern portions of the structural feature, with an average grade of 2.4 wt. % Cu, 17.23 g/t Ag, 1.25 g/t Au and 0.33 wt. % WO3, and a maximum grade of 3.15 wt. % Cu, 36.4 g/t Ag, 1.79 g/t Au and 1.05 wt. % WO3, being obtained. In the north-eastern portions of the same structural feature, eight-channel samples of a 70 m long mineralised calc-silicate unit have also yielded a significant average grade of 1.28 m @ 2.72 wt. % Cu, 56.7 g/t Ag, 0.45 g/t Au and 0.23 wt. % WO3, with one sample yielding 2 m @ 4.10 % Cu, 252 g/t Au, 0.80 g/t Au and 0.21 wt. % WO3.

In addition, several neglected (and decisively inconclusive) historical base and precious-metal geochemical anomalies link and trend between these two mineralised areas within the structural feature.

Until today, these anomalies and mineralised exposures have never been conclusively placed within any project-scale geological framework or explored using modern exploration methods.

Omico Mining

Omico Mining Corp. was formed in 2019 through a strategic partnership by UK-based Greenstone Resources, which had an earn-in agreement with the Australian-registered International Base Metals Ltd over the Omitiomire Copper Project.

Omico, through its Namibian subsidiary, Craton Mining and Exploration (Pty) Ltd, holds Mining Licence 197 and EPL 8550, together with a 30,000ha licence area that makes up the Omitiomire Copper Project. The mining licence is valid until March 2036.

Omico Mining holds 95% of Craton Mining and Exploration (Pty) Ltd, and the other 5% is held under the Crafton Foundation Trust, which undertakes social initiatives.

Background

The Omitiomire Copper Project is located 120km northeast of Windhoek in central Namibia in a semi-arid savannah environment, with the wet season running from December to March.

The licence area is mainly used for cattle farming and game hunting and is easily accessible.

This project has the potential to be a long-life, low capital-intensive project, with a Measured and Indicated resource of 95.8 million tonnes ('Mt') at 0.59% TCu and with an additional 9.7Mt at 0.57% TCu in the Inferred category, at a 0.25% Cu cut-off grade.

Genmin, a precursor to Billiton/BHP, discovered the deposit in the 1970s.

The International Base Metals Ltd acquired the project in 2008.

Genmin drilled at various grid spacings to provide an extensive database.

The base case anticipates the production of 30,000 tonnes per annum of LME Grade A copper cathode for at least 15 years, targeting only open-pit mineralisation.

The drilling is generally on a north-south and east-west grid pattern, with the majority (97%) of the drilling being vertically orientated. Extensive geochemical and geophysical anomalies within the exploration license provide exploration upside.

Drilling has resulted in an estimated CIM Measured and Indicated resource of 95.8 million tonnes at 0.59% Total Copper for 563,300t contained copper at a 0.25% Cu cut-off grade. This latest resource update was by MSA Group in May 2022.

For most of its history, the project was envisioned to be an open pit mine with a copper concentrator until recent test work established that the large chalcocite mineralisation is amenable to a chloride-curing, acid heap leach with solvent extraction and electro-winning technology to produce copper cathode.

Hope-Gorob Project

The Hope Copper-Gold project comprises three exclusive prospecting licences, EPL 5796 (70% Bezant) and EPLs 7170 and 6605 (80% Bezant owned in each), totalling approximately 1,053 km2.

The tenures are in the Namib Desert within the Swakopmund District, Erongo Region, accessible by well-maintained gravel roads.

EPL 5796 is held by Hope and Gorob Mining (Pty) Ltd, which is 70% owned by Hepburn Resources Pty Ltd (100% owned subsidiary of Virgo) and 30% owned by a local partner.

EPL6605 and EPL 7170 are held by Hope Namibia Mineral Exploration (Pty) Ltd, which is owned 80% by Hepburn Resources Pty Ltd and 20% by a local partner.

The Bezant project area contains a series of copper deposits, of which three (Hope, Gorob-Vendome and Anomaly) make up a combined gross Indicated and Inferred Mineral Resource of 10.2Mt @ 1.9% Cu and 0.3g/t Au at a 0.7% Cu cut-off, reported by the JORC Code (2012), containing 192kt of Cu metal and 3,190kg of Au.

Approximately 30% of the Mineral Resource tonnage is classified in the Indicated Mineral Resource category, with the balance in the "Inferred" Mineral Resource category, and the estimate was based on 339 drill holes for a total of 63,855 metres.

Bezant acquired 100% of Virgo Resources and its interest in the Hope Copper-Gold Project in June 2020.

Through its 100% owned Australian subsidiary Hepburn Resources Pty Ltd, Virgo owns 70% of Hope and Gorob Mining Pty Ltd, which owns EPL5796.

Virgo also owns 80% of Hope Namibia Mineral Exploration Pty Ltd Incorporated, which owns EPL 6605 and 7170.

Local Namibian partners hold the balance of the project.

Bexant released an updated indicated and inferred mineral resource estimate for the Hope and Gorob Project in October 2023.

The total mineral resource was 15 million tonnes gross at 1.2 % Cu, with 190 thousand tonnes of Cu estimated across the Hope, Gorob Vendome, and Anomaly deposits.

This comprised a total indicated resources of 1.24 million tonnes at 1.6% Cu and 0.4 g/t Au at the Hope deposit and a total inferred resources of approximately 14 million tonnes at 1.2% Cu across the Hope, Gorob, Vendome, and Anomaly deposits, including approximately 3 million tonnes at 1.7% Cu and 0.4 g/t Au at Hope.

The MRE identified significant potential for open pit extraction with an open pit resource of 2.4 million tonnes and the potential, assuming favourable Cu grades from further drilling, of increasing the size of the practically open pittable resource for a further 700,000 to 1 million tonnes postulating an open pit that could support five years mine life at an annual rate of 500,000 tonnes per year.

The MRE identified that more profound parts of the orebody had the potential to be mined underground, utilising a former concrete-lined shaft with additional access from the base of the open pit.

The total tonnes of contained copper in the Mineral Resource Estimate are approximately 190,000 tonnes. AMS postulates that this could be significantly increased by drilling untested areas where mineralisation is projected and a drilling programme targeted toward increased gold credit, thereby increasing the overall copper equivalent grade.

Extractor Magazine Vol.1 Edition 9

The Dordabis-Witvlei Project

The Dordabis-Witvlei project covers EPLS 7028, 7029, and 7030, and it is located about 150 km east of Windhoek.

The project covers about 65 km of prospective stratigraphy in the Kalahari Copper Belt, extending eastward into Botswana, where several major copper deposits are financed and developed.

The Dordabis project covers over 470 km2 under EPL 3257. It comprises. It comprises two main copper prospects, Koperberg and RK, which have been the main focus of work to date, including the drilling programmes completed in 2008 by Kalahari Minerals.

Several other copper showings have also been drill tested, all falling within 2.5km of the main Koperberg deposit (e.g., Swartberg, Klein Koperberg, Koperberg South, and Balfour).

Koperberg, RK, Klein Koperberg, Koperberg South, and Balfour prospects are of the sedimentary hosted style of mineralization.

Witvlei Copper Project

The Witvlei Copper Project covers seven known copper prospects located over 550 km2 (EPL 3258 and 3261). North River is re-assessing all previous drilling results to identify areas for specific follow-up at Malachite Pan, Okasewa, Christiadore, Witvlei Pos, and Gemsbockvley.

In 2020, White Metal Resources closed a transaction concerning the DorWit Copper-Silver Project with Noronex.

Noronex was assigned the rights to the original earn-in agreement made with RZJ Capital Management LLC.

Under the terms of the Earn-In, Noronex can earn up to 70% of the project by meeting certain payment milestones and, following feasibility studies, has the right to acquire White Metal's remaining interest of 25% that is held in the company's 95%-owned Namibian subsidiary, Aloe Investments Two Hundred and Thirty-Seven (Pty) Ltd.

Noronex will also take over the funding obligations defined in the original Earn-In agreement.

Q&A: Uranium One spends over N$3.8 million on social projects

As we have heard, Uranium One has recently opened an office in Leonardville. What does it mean for the company, its activities, and the local community?

The opening of the office is an important step in developing the company's operations and building valuable partnerships aimed at improving life throughout the county. It demonstrates our intention to do the project and our long-term plans to cooperate with the region and the country.

Kirill Egorov-Kirillov, Director of Mines at Uranium One and Director of Headspring Investment, zooms in on the company's operations and strategies going forward.

We aim to be a trusted partner that not only works alongside and invests in business development but also creates many projects that benefit the Namibian society. Uranium One has already spent over N$3.8 million on social projects. These include the purchase and repair of vehicles for police and medical services, improvement of the city park, which has become a favourite place for recreation and events for adults and children, supply of food to the city school, and the construction of a school kitchen. And that's just the beginning.

In 2023, you received an environmental certificate for the field laboratory – why is this important for the project?

Obtaining an Environmental Clearance Certificate (ECC) for our laboratory once again shows a high level of confidence in our company on the part of the regulatory authorities. We, in turn, confidently demonstrate that we compulsorily carry out all necessary procedures with regard to environmental impact assessment and comply with all laws, rules, and regulations of Namibia. The use of our own laboratory during fieldwork is certainly very time-saving, cost saving and, in general, significantly increases the efficiency of project implementation. We will be able to get the results of groundwater and surface condition assessment as quickly as possible. This is entirely in line with the basic principles of our work: safety and efficiency.

The release of the ECC was a very positive step for us and gave hope to those communities looking forward to the benefits of planned mining.

First of all, it is a step towards creating new jobs. We plan to attract local residents to work in the laboratory by providing the necessary training for specialised specialists. In the future, this will help them to be in demand and have well-paid jobs.

How is it going with obtaining other certificates and permits for the project?

As I said, we operate strictly within Namibian law, so we have applied to the Ministry of Environment Forestry and Tourism. It is currently under review.

Following recent legislative changes and the coming into force of the Water Resources Management Act, Act 11 of 2013 (the "Act") by the Minister of Agriculture, Water Resources and Land Reform dated August 29, 2023, the company has decided to withdraw its application to the High Court of Namibia, for judicial review of the decision of the Ministry of Agriculture, Water Resources, Land Reform to refuse a permit for exploratory drilling. Although the law has been in place since 2013, its recent enactment has significantly changed the legal framework governing such activities.

We are also open

to dialogue and continue to consult with all stakeholders to clarify any issues related to the project and reach a mutual understanding. We are confident that the company will be given a fair opportunity to conduct field trials that will confirm the safety of the extraction method, particularly in relation to underground water sources vital to local communities.

What strategies does Uranium One employ to monitor and mitigate the environmental impact of its mining activities in Namibia, and how does the company collaborate with relevant agencies and organisations in this regard?

We draw on our extensive experience with uranium mining projects and, as a result, a wide range of experience in dealing with agencies and organisations working in this field. In accordance with IAEA regulations, our operating facilities are subject

to ongoing sampling by independent participants, and all results are publicly available and open.

As part of the company's policy of openness, we are ready to provide stakeholders with information on the project's environmental parameters at any time and intend to maintain this policy throughout the field's commercial operation.

It is essential to us that all our work be transparent and as open as possible for all region residents. Therefore, we fully support the creation of an initiative group by residents, for which we are ready to provide the results of our research and work through any information channels. For example, one of the Russian mining companies has an information board that displays real-time parameters on the acidity of solutions in the subsurface, and anyone can see information about what is happening underground.

Why will the ISR (in-situ recovery) method of uranium mining specifically be used in the project?

Deposits of this type can be economically mined only by the ISR, as the ores here are poor and watered.

Most importantly, the IAEA recognises the ISR method as the most environmentally friendly, and the share of uranium mining by the ISR method in the world has already reached 63%. As a result of the activity, the natural landscape undergoes minimal changes, and no waste rock residues (dumps) and tailings with ore processing waste are generated. After decommissioning, the wells will be closed, the process units will be dismantled, and the soils will be reclaimed. This way, the area can again be used for other purposes, such as agriculture.

Uranium One has adopted and follows this responsible environmental policy. This policy is essentially built on the following principles: preservation

> We want to show everyone who is concerned about the aquifer exactly how it will be extracted and how safely we can do it. And in the end, at least I hope so, we will be able to turn the long-drawn-out dialog with our opponents into a discussion of concrete practical rather than hypothetical project performance.

of natural ecosystems as its top priority, unconditional use of scientific advances and ensuring environmental safety, and transparency and openness to the public about the environmental impacts of industrial activities.

How do you feel about the negative statements of your opponents on the internet and in the media who oppose the use of the SPV method?

We are attentive to any comments and try to take into account every opinion, regardless of whether it is positive or negative. We know that this project is very important for the people living in these territories from all points of view.

I am deeply convinced that all criticism comes from ignorance of the fact that people are not familiar with this method and are afraid of it, and this creates conditions for spreading unconfirmed or unreliable information, thus creating conditions for the substitution of concepts and various kinds of speculations.

Therefore, we try to do our best to make as many residents of the surrounding regions as possible better

aware of how the ISR method works and how careful it is to nature. It is extremely important to us that projects meet the needs and expectations of all parties involved and, above all, the local community. Namibia is a truly exceptional case. There is a large number of ethnic groups with their own views, interests, and expectations. This is why we use many communication formats, including our online information resources and various events.

We not only hold regular round tables and training events but also organise trips for Namibian public and media representatives (including SAUMA representatives) to the operating enterprises in Russia and Kazakhstan (the world leader in ISR production), where they can see for themselves how environmentally friendly the production is, how all the residents and employees drink the water of their region with pleasure, how many jobs the enterprise gives to residents, and what good harvests their neighbours farmers gather in the nearby fields.

Based on Rosatom's more than 50 years of experience in the ISR method, we can state that monitoring wells fully control the spread of man-made solutions.

We control the aquifer 24/7. We ensure that the concentration in water outside the sanitary zone (100-200 meters from the deposit) does not exceed the level that existed before the start of mining.

Also, don't be intimidated by the word "acid" because ISR extraction uses a very weak solution (about 5 g/liter or 0.5%). The acidity pH is maintained at 3, which corresponds to the acidity of red wine.

Participants of technical tours to our facilities in Russia and Kazakhstan saw all this with their own eyes. They saw by live example how the ISR method "pumped out the uranium solution and extracted the uranium" and understood why many chemical engineers call the ISR a giant water purification system. Obviously, the water in the vicinity of the ore body is inherently unsuitable for any kind of use due to high radionuclide content. As part of the project, we are ready to conduct studies to determine the area of existing radionuclide contamination in the water and are in the process of applying for drilling wells for such studies.

We want to show everyone who is concerned about the aquifer exactly how it will be extracted and how safely we can do it. And in the end, at least I hope so, we will be able to turn the long-drawn-out dialog with our opponents into a discussion of concrete practical rather than hypothetical project performance.

What projects does Uranium One have planned for 2024 in Namibia?

First, we expect to obtain all necessary permits to conduct a field test and carry out work to determine the area of natural radionuclide contamination of groundwater in the license areas.

We certainly plan to work closely with local communities and the Namibian government to ensure that the benefits of uranium mining are shared equitably, contributing to the long-term prosperity and sustainable development of the country.

Uranium One will continue to help local communities in its operating regions. The company supports community development initiatives to improve and fund local education and health care. This includes recruitment and training programs to maximise the employment and professional development of residents, local business and entrepreneurship initiatives to ensure the availability and quality of local service providers and materials, initiatives to equip and improve schools and health care facilities, and environmental initiatives to protect, improve and preserve local ecosystems, environments and wildlife resources ■

Extractor Magazine Vol.1 Edition 9

COLUMN

African Leaders Must Find Ways to Encourage Ongoing Oil and Gas Investments

By Tom Alweendo

As the 2023 U.N. Climate Change Conference, the 28th Conference of Parties (COP28) in Dubai, drew to a close, the air was thick with determination among the 200 delegates. Acknowledging that the era of fossil fuels was on its last legs, they collectively pledged to hasten its demise. This was heralded as "the beginning of the end" for coal, oil, and natural gas. The nails and hammers were poised to pound the coffin of a sure-to-be-dead fossil fuel industry.

The conference culminated in a comprehensive agreement known as the "global stocktake".

This ambitious strategy set forth crucial objectives:

- Tripling renewable energy capacity.
- Doubling the rate of energy efficiency improvements by 2030.
- Expediting the reduction of coal power without carbon capture.
- Intensifying efforts to shift away from fossil fuel reliance in energy systems.

The overarching message was clear: a full-scale transition to renewable energy sources is imperative, while fossil fuels must be left in the ground.

> The International Energy Agency estimates that Africa would require over USD200 billion annually until 2030 to meet the Sustainable Africa Scenario's energy and climate objectives. Yet, despite a rise in global clean energy investment everywhere else, only a mere fraction of this amount, about USD25 billion, has been invested in Africa's renewable infrastructure development. This shortfall is even more pronounced considering Africa's burgeoning population, which is projected to constitute 25% of the global population by 2050.

However, this either/or binary approach poses a significant dilemma for African nations. The economic and social benefits of fossil fuels are still crucial for us – from reducing energy poverty to bolstering our economies. Moreover, we believe these benefits can be harnessed in tandem with addressing climate change concerns.

Our plea for understanding from Western nations and environmental groups, who are intensifying their efforts to stop new investments in African oil and gas ventures, seems to fall on deaf ears. The struggle to secure project financing is growing. On November 30, 2023, The Economist revealed that 27 banks had withdrawn from financing the East African Crude Oil Pipeline project, and numerous others had decided against directly funding new oil and gas initiatives.

Yet, there are glimmers of hope, particularly in Namibia. Here, we have introduced reforms to reduce the risks for investors. Almost a year ago, significant offshore oil and gas discoveries rewarded the investments of oil majors like Shell, TotalEnergies, and QatarEnergy in Namibia. Following this, Namibia has witnessed a surge in exploration activities. At the beginning of 2024, Portugal's Galp Energia announced the discovery of a substantial light oil reserve in Namibia's offshore block PEL83. Galp and its partners NAMCOR and Custos Investments Ltd. plan to explore deeper depths. Upcoming drilling campaigns by Chevron (U.S.) and Woodside Energy (Australia) are expected to continue this momentum.

The intention was noble – to avert a climate crisis and expand access to clean energy to millions lacking it. However, practical strategies and timelines to achieve this were notably absent despite vehement criticism of the oil and gas sector.

This is a testament to an irrefutable fact. Despite the global push for a near-instant transition to renewables, the immediate benefits for us (and many African nations) still predominantly lie in oil and gas.

A Reality Check

As suggested by the COP28 global stocktake, the immediate shift to renewable energy is impractical and overly idealistic.

Any swift transition to renewable energy would only be viable if Africa, or indeed the world, were ready to rely entirely on wind, hydro, wave, and solar energy to power homes, businesses, vehicles, and industries. Unfortunately, we are nowhere close.

For instance, despite Africa's abundant solar and wind energy potential — holding 60% of the planet's capacity — our production capabilities are starkly different. We might be termed the "Sun Continent", but our solar energy generation capacity is a mere 1% of the global total. In sub-Saharan Africa, biomass remains the predominant energy source for many.

Let us be clear that Namibia remains committed to a future of renewable energy. We have taken significant strides towards establishing a green hydrogen economy, which is evident in projects like the 3-gigawatt Tsau Khaeb and others in Kharas, Kunene, and Walvis Bay. However, achieving parity with global renewable energy capabilities will take time and money. A whole lot of money that most, if not all, countries that make up the so-called "Sun Continent" do not have.

Lacklustre Funding Support

To be fair, this funding gap has not gone unnoticed. Institutions like the World Bank, the U.N., and the International Energy Agency have urged developed economies to invest in African renewable energy infrastructure. To date, the financial support has been underwhelming.

Extractor Magazine Vol.1 Edition 9

Namibia exemplifies these efforts in both oil, gas, and mining sectors. We continue to collaborate with investors and industry stakeholders to foster further improvements. Our endeavours to create an enabling environment for investors played a significant role in driving the drilling campaigns by Shell, TotalEnergies, Galp, and QatarEnergy.

This means that, for all their renewables fervour and promises, the richer Western nations — which collectively contribute the highest to global emissions — are not putting their money where their mouths are.

The International Energy Agency estimates that Africa would require over USD200 billion annually until 2030 to meet the Sustainable Africa Scenario's energy and climate objectives. Yet, despite a rise in global clean energy investment everywhere else, only a mere fraction of this amount, about USD25 billion, has been invested in Africa's renewable infrastructure development. This shortfall is even more pronounced considering Africa's burgeoning population, which is projected to constitute 25% of the global population by 2050. The continent's energy needs will rise exponentially, and the funding gap will not close anytime soon. As of today, the Just Energy Transition

Partnerships, a COP26 initiative designed to finance sustainable development in emerging economies, has yet to implement or produce significant results effectively. Within this context, one must challenge the renewables or nothing stance of the Global Stocktake at COP28. If fossil fuels are out, what do we have to replace them, now and into the future?

Unacceptable Interference

Underinvestment in African renewables is just one aspect of a larger problem. Concurrently, the West is concerted in stifling investment in African fossil fuel projects. Even natural gas exploration – the cleanest fossil fuel and a transitional energy source – faces intense scrutiny and opposition.

For instance, a 2021 article in The Guardian reported that some experts advised Africa to prioritise renewable energy adoption at all costs, even if it meant abandoning the exploration of lucrative gas reserves.

The intention was noble – to avert a climate crisis and expand access to

Extractor Magazine Vol.1 Edition 9

> In light of this, African leaders must take immediate action to foster an environment conducive to oil and gas investments. We invite energy companies to partner with us. Do not overlook the vast opportunities in Africa. Your investments will yield returns and contribute significantly to eradicating energy poverty, driving economic growth, and paving the way for developing renewable energy sectors in African countries.

clean energy to millions lacking it. However, practical strategies and timelines to achieve this were notably absent despite vehement criticism of the oil and gas sector.

This is not to undermine the dedication of climate activists; the reality of climate change impacts is undeniable. However, I believe Africa can address climate change while simultaneously tackling energy poverty through the judicious use of our natural resources. With 600 million people lacking electricity access, a comprehensive approach is imperative to overcome the current energy deficit and mitigate against a larger one in the future.

Namibia's Logical Response

From the preceding, it is only logical for African nations to safeguard the socioeconomic advantages from ongoing oil and gas operations. We can do this by enacting policies incentivising investment and building inclusive economic and political institutions. Our tax and royalty policies must reflect the high costs associated with exploration and production. Factors like stable economies, transparency, and efficient legal frameworks significantly influence investment decisions. We must be committed to ensuring these conditions are met in our countries.

Namibia exemplifies these efforts in both oil, gas, and mining sectors. We continue to collaborate with investors and industry stakeholders to foster further improvements. Our endeavours to create an enabling environment for investors played a significant role in driving the drilling campaigns by Shell, TotalEnergies, Galp, and QatarEnergy.

These companies' investments in Namibia will play a central role in generating government revenue, building roads, bridges, and dams, creating jobs, and improving every Namibian's living standards, in line with President Hage Geingob's vision.

However, we must not compromise our needs and priorities to attract investment. African nations must always seek mutually beneficial investments. This can be achieved through balanced and pragmatic local content policies that offer employment, business opportunities, capacity building, and technology and knowledge transfer.

Imperatives for our prosperous future

African countries' pursuit of fossil fuel projects, especially natural gas, aligns with global practices. Even countries advanced in renewable energy do not rely solely on these sources. For instance, in the U.S., 60% of electricity is still generated from fossil fuels, predominantly natural gas, while renewables and nuclear energy contribute 21% and 18%, respectively. Natural gas is deemed more reliable, operating at full capacity 65% of the time, compared to solar and wind energy's 36% and 25% capacity factors, respectively. Asking African nations to disregard natural gas is akin to suggesting we should accept half the power capacity, half the standard of living, and half the safety compared to Western nations. This is not a reasonable expectation.

Capitalising on Africa's natural gas resources is about more than just enhancing power capacity or addressing electricity shortages. It is a means to build industrial capacity and revitalise African economies, lifting people from poverty and energy scarcity.

In light of this, African leaders must take immediate action to foster an environment conducive to oil and gas investments. We invite energy companies to partner with us. Do not overlook the vast opportunities in Africa. Your investments will yield returns and contribute significantly to eradicating energy poverty, driving economic growth, and paving the way for developing renewable energy sectors in African countries.

Let's remember that no nation has achieved industrialisation solely through solar or wind power. But those industrialised, with financial reserves, are better positioned to finance their energy transitions. As Africans, we must be able to drive our energy transition initiatives by using what we have now to achieve what we envision for our future. To waiver from this objective is a risky and untenable proposition.

*APO Group distributes it on behalf of the African Energy Chamber.


CAT