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THE ROSSING SPECIAL EDITION

The Extractor
Mapping Namibia's Mineral Resources

- Anglo American missed the world's biggest prize
- Rio Tinto says no twice to the offer to take over Rössing
- The final R300 million gamble to develop Rössing
- Rössing has outlived politics and governments

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Rössing Uranium

The mine that created a uranium province

Rössing's greatest legacy is most probably not simply that it became a successful mine, but that it convinced the global mining industry to return to Namibia in search of more deposits hidden beneath the ancient granites and desert plains.

***Photos:** Rossing Uranium Mine

The sea captain who discovered Namibia's uranium future

The Rössing story begins with a sea captain long before the first drum of uranium oxide concentrate left the processing plant. Captain G. Peter Louw was not a mining geologist employed by one of the great international mining houses.

A LOOK AHEAD TO 2026 IN NAMIBIA – RECONAFRICA

As our work with the communities and authorities of Namibia continues into 2026, we are pleased to share a number of successes and developments around our exploration activities under PEL 073, as well as a look to the year ahead.

KEY SUCCESSES OF 2025

In 2025, ReconAfrica progressed key priorities by drilling our second exploration well in the Damara Fold Belt. The results showed indications of oil and gas over eight separate intervals in the Kavango West 1X well. A total of 64 metres (210 feet) of the sections contained confirmed hydrocarbons, with additional promising signs deeper in the well within the limestone reservoir. These findings suggest that the Damara Fold Belt has real potential for future energy development.

Following these positive results, PEL 073 partners ReconAfrica (operator), NAMCOR, and BW Energy met with Her Excellency President Nandi-Ndaitwah to discuss the oil and gas findings and explore how the partnership could support onshore development and help strengthen Namibia's long-term energy future.

WORKING WITH COMMUNITIES IN KAVANGO EAST AND KAVANGO WEST

ReconAfrica continues to invest in and work with local communities and is proud to have an industry-leading Environmental, Social and Governance programme in Namibia.

To date, ReconAfrica has:

- Locally hired and contracted over 2,700 short and long term positions, and worked with over 550 local, regional and national service and supply companies
- Supported 10 STEAM and 7 SAN Nursing students from the Kavango East and Kavango West regions with scholarships
- Installed 36 solar-powered community water wells in remote areas
- Completed more than 2,600 community engagement sessions
- Provided N$19 million in funding for medical services, equipment, training and wellness programmes
- Provided funding for environmental and social projects in various communities

WHAT IS NEXT FOR RECONAFRICA IN NAMIBIA?

Preparations are underway for a production test of the Kavango West 1X well this year. The team is currently procuring the necessary equipment and has applied for permits required for production testing in order to evaluate the zones of interest. This will be the first production test for hydrocarbons in Namibia and could result in the first flow of hydrocarbons to surface for the Country. We expect to conclude this testing by the third quarter of 2026.

In all aspects of our operations, ReconAfrica is committed to minimal disturbance of habitat in line with international standards and implementing environmental and social best practices in our project areas.

We remain grateful to the people of Namibia for your partnership in exploring the potential for long-term energy development in the area and look forward to providing further updates throughout 2026.

Inside

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COVER STORY

The mine that created Namibia's uranium province

The success of Rössing was never measured solely by the uranium it produced. Long before the mine reached its peak production years or became one of Namibia's largest exporters, it had already achieved something far more significant.

It had fundamentally changed the way geologists, mining companies and investors viewed the central Namib. What had once been regarded as an isolated uranium occurrence discovered by Captain G. Peter Louw in 1928 was now recognised as proof that the Erongo region contained one of the world's most prospective uranium provinces.

The greatest legacy of Rössing was therefore

not simply that it became a successful mine, but that it convinced the global mining industry to return to Namibia in search of more deposits hidden beneath the ancient granites and desert plains.

For almost three decades after production began in 1976, Rössing stood alone as Namibia's only uranium mine. During that period, it became both a producer and a geological classroom. Every tonne of ore mined, every blast completed and every drill hole logged improved understanding of the uranium-bearing alaskites that characterise much of the central Namib.

Geologists developed increasingly sophisticated geological models explaining how uranium had become concentrated within the granite intrusions, while mining engineers demonstrated that low-grade deposits could generate substantial returns if they were sufficiently large and supported by efficient processing technology. The mine, therefore, became a living laboratory whose experience extended far beyond its own lease area, influencing exploration strategies across the region.

Perhaps the most important lesson Rössing taught the mining industry was that grade alone did not determine value. Before its development, uranium exploration had focused largely on identifying relatively small but exceptionally rich deposits suitable

for underground mining. Rössing overturned that philosophy by proving that an enormous orebody containing comparatively modest uranium grades could support a highly profitable operation if economies of scale, modern engineering and efficient metallurgical recovery were brought together. That lesson reshaped uranium exploration not only in Namibia but internationally, encouraging companies to reassess deposits that had previously been dismissed as uneconomic simply because they did not resemble the high-grade mines of Canada or elsewhere.

The confidence created by Rössing's success triggered a new era of exploration across Namibia during the decades that followed. Geological surveys expanded their understanding of the Erongo uranium province, while major international mining companies returned to the country with renewed interest. Exploration licences multiplied across the Namib Desert as companies searched for deposits displaying the same geological characteristics that had underpinned Rössing's success. By the early 2000s, rising uranium prices and renewed global interest in nuclear power had accelerated exploration even further, leading to one of the world's most active uranium exploration booms.

That renewed confidence produced discoveries that transformed Namibia into a uranium superpower. Langer Heinrich, discovered decades earlier but only developed after confidence in Namibia's uranium sector had grown, entered production in 2007 and demonstrated that sandstone-hosted uranium deposits could complement the country's granite-hosted resources. Trekkopje, Valencia, Etango and Husab followed as successive exploration programmes confirmed that the central Namib contained multiple world-class uranium systems. Although each deposit had its own geological characteristics and technical challenges, all benefited from Rössing's demonstration that Namibia could successfully host and sustain a globally competitive uranium industry.

The influence of Rössing extended well beyond geology. The mine established a skilled workforce that would later populate new uranium developments across the country. Engineers, geologists, metallurgists, environmental specialists, artisans and mine managers who developed their expertise at Rössing carried that knowledge into subsequent projects, creating a pool of technical skills that few emerging mining jurisdictions possessed. Companies entering Namibia no longer had to build an industry from the ground up because Rössing had already laid the foundations through decades of operational experience, technical training and institutional development.

The mine also transformed the country's mining infrastructure. Roads, power supply systems, engineering services, laboratories, specialist contractors, environmental consultancies and supply chains that initially developed to support

Rössing gradually became available to the broader mining industry. Arandis evolved from a purpose-built company town into a permanent settlement serving the wider uranium sector, while Swakopmund increasingly became the operational and logistical centre of Namibia's uranium industry. The economic ecosystem that emerged around Rössing significantly reduced the barriers facing later developers and reinforced Namibia's reputation as one of Africa's premier mining destinations.

Rössing's contribution to Namibia's economy has been equally profound. Over five decades, the mine has generated billions of Namibian dollars in export earnings, taxes, royalties and procurement spending while supporting thousands of direct and indirect jobs. Beyond the financial contribution, it has played an important role in developing local suppliers, strengthening technical education, supporting scientific research and contributing to community development in Erongo and beyond. Ownership of the mine has changed over time, most notably with China National Uranium Corporation's acquisition of Rio Tinto's majority stake in 2019. Yet the operation has continued to produce uranium from the same remarkable orebody first recognised almost a century earlier.

As Rössing approaches its fiftieth anniversary in June 2026, Namibia's uranium landscape bears little resemblance to the one Captain Peter Louw encountered in 1928. The country now hosts multiple uranium-producing mines, globally significant development projects, and dozens of active exploration companies searching for the next major discovery. Namibia consistently ranks among the world's leading uranium producers and possesses one of the largest known uranium resource endowments on Earth. None of that was inevitable. It required a discovery that many dismissed, prospectors who refused to give up, a mining company willing to challenge accepted wisdom, and engineers prepared to build a mine that many believed could never succeed.

It is tempting to measure Rössing's legacy in tonnes of uranium oxide produced or the billions of dollars it has contributed to Namibia's economy. Those achievements are undoubtedly remarkable, but they are not my greatest accomplishment. Its enduring legacy lies in changing perceptions. Rössing proved that Namibia possessed not merely a uranium deposit but an entire uranium province. It gave geologists the confidence to keep exploring, investors the confidence to keep investing and mining companies the confidence to develop deposits that might otherwise have remained undiscovered for generations.

Nearly a century after Captain G. Peter Louw stooped to examine an unusual radioactive rock in the Rössing Mountains, that single moment continues to shape Namibia's mining future. One discovery became one mine. One mine became a uranium province. And that uranium province has become one of the foundations upon which modern Namibia continues to build its economic future.

ROSSING

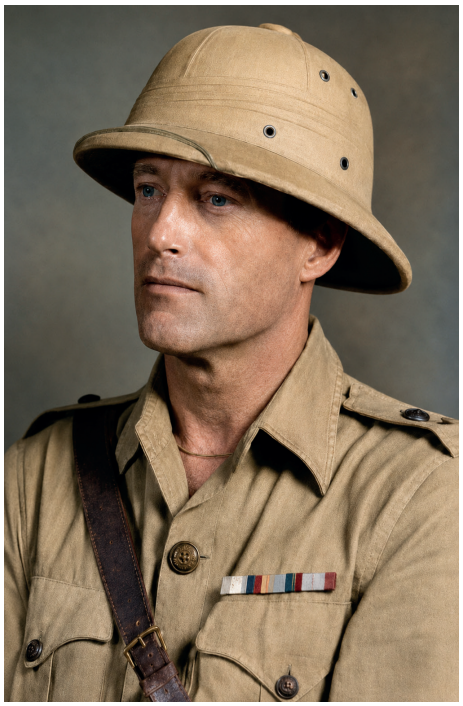
The sea captain who discovered Namibia's uranium future

The Rössing story begins with a sea captain long before the first drum of uranium oxide concentrate left the processing plant.

It begins with a sea captain whose curiosity would eventually alter the course of Namibia's mining history.

Captain G. Peter Louw was not a mining geologist employed by one of the great international mining houses. He was a former merchant sea captain who settled in Swakopmund after the First World War and developed a passion for exploring the Namib Desert. Like many residents struggling through the difficult economic years of the late 1920s, Louw spent much of his spare time prospecting in the rugged mountains and dry river valleys east of Swakopmund, searching for minerals that might one day prove commercially valuable.

One day in 1928, while exploring the Rössing Mountains on the southern bank of the Khan River, Louw picked up an unusual dark rock that caught his attention. It looked different from the surrounding granite and, believing it might be worth investigating, he took it home. There, his wife Margery, a trained radiographer who understood the properties of radioactive minerals through her medical work, suggested that the specimen might contain radium, then regarded as one of the world's most valuable medical minerals because of its use in cancer treatment. To test her theory, the couple placed



the rock on an X-ray photographic plate. When the plate was developed, the outline of the stone appeared clearly, proving that it was radioactive. At that stage, however, there was no suggestion that the rock contained one of the world's future strategic minerals.

The discovery was remarkable, but it arrived decades too early.

In 1928, there was virtually no commercial market for uranium. The nuclear age had not yet begun, atomic power did not exist, and uranium was little more than a scientific curiosity. Radium attracted interest because of its medical applications, but laboratory analysis of the samples sent to England concluded that, although the rocks were radioactive, they possessed no obvious commercial value. The Great Depression followed scarcely a year later, pushing prospecting

aside as survival became the priority for many families living along Namibia's central coast.

For almost two decades, the discovery lay dormant, interrupted first by economic hardship and then by the Second World War. The Rössing Mountains remained exactly as Louw had found them — isolated granite hills in the Namib Desert holding a secret that neither science nor industry had yet learnt to appreciate.

Everything changed on 6 August 1945.

The United States dropped the first atomic bomb on Hiroshima, followed three days later by a second bomb on Nagasaki. Overnight, uranium was transformed from an obscure mineral into one of the world's most strategic commodities. Governments began searching aggressively for new uranium supplies to support both defence programmes and the emerging civilian nuclear power industry. The atomic age had arrived, and with it came renewed interest in radioactive minerals across the globe.

Among those who immediately recognised the significance of the new world order was Captain Louw's son, John. Trained as an industrial chemist and familiar with the periodic table, John understood that uranium and radium belonged to the same radioactive family of elements. If the rocks his father had discovered years earlier contained radium, they might also contain uranium. During a visit to Swakopmund, he shared the idea with his father, and together they returned to the Rössing Mountains carrying a Geiger counter instead of ordinary prospecting tools.

The search almost ended in disappointment.

Father and son filled canvas bags with dozens of dark stones before testing them one by one. Most produced nothing but silence from

the Geiger counter. According to John's later account, they had almost given up when, with only a handful of stones remaining, the instrument suddenly came alive. The rapid clicking confirmed they had rediscovered the radioactive outcrop first noticed nearly twenty years earlier. John would later describe that single stone as "the birth of Rössing Uranium" because it proved that the original discovery had not been a coincidence but part of a much larger mineralised system hidden beneath the desert.

The family immediately marked the location and called in John's brother, Graham Louw, who formally pegged the first mining claims. In 1954, Captain Louw joined Graham, Major McLaren and Mr Beecroft to establish a syndicate dedicated to investigating the discovery more systematically. The following year, they incorporated G.P. Louw (Pty) Ltd., securing rights over approximately 1,200 square miles of prospective ground and beginning the difficult task of convincing established mining companies that the remote Namib Desert concealed a uranium deposit of international significance.

That proved easier said than done.

Although the atomic age had created demand for uranium, proving the commercial viability of a deposit in one of the world's harshest deserts required capital, technical expertise, and drilling programmes far beyond the means of a small prospecting company. Captain Louw and his partners, therefore, began approaching South Africa's major mining houses in search of a partner willing to test what many still regarded as little more than an interesting geological anomaly.

The first company to answer that call was Anglo American.

ROSSING

Anglo American missed the world's biggest prize

Captain G. Peter Louw's discovery had proved that the Rössing Mountains contained radioactive minerals. Still, by the mid-1950s, the excitement surrounding the find had given way to a far more difficult question.

Could anyone be persuaded that the barren granite hills rising out of the Namib Desert concealed a uranium deposit capable of becoming a commercial mine?

Finding the radioactive rocks had required determination and curiosity. Proving that they represented one of the world's largest uranium deposits would require money, sophisticated exploration techniques and the backing of a major mining house.

The small syndicate established by Captain Louw, his sons Graham and John, Major McLaren and Mr Beecroft possessed none of those resources. After incorporating G.P. Louw (Pty) Ltd. in 1955, the group secured rights over an extensive area surrounding the original discovery and embarked on the difficult task of attracting investors.

They understood that the future of the project depended not on their ability to continue collecting radioactive rocks but on convincing an established mining company to undertake the

systematic drilling and geological evaluation needed to determine whether the mineralisation extended beneath the surface.

Their timing appeared favourable. The Second World War had fundamentally altered the world's relationship with uranium. Before 1945, the metal had attracted little commercial attention beyond limited medical and scientific applications. Still, the atomic bombs dropped on Hiroshima and Nagasaki transformed uranium into one of the world's most strategic minerals almost overnight. Governments in the United States, Britain and the Soviet Union began competing aggressively to secure reliable uranium supplies for military programmes. At the same time, the emergence of civilian nuclear power during the 1950s created an entirely new market that appeared destined to expand rapidly. Across southern Africa, prospectors and mining companies began searching for new uranium deposits capable of supplying what many believed would become the energy industry of the future.

It was against this backdrop that Anglo American Corporation, already one of Africa's most influential mining companies, agreed to examine the Rössing property. Few companies at the time possessed the financial strength or technical expertise required to investigate such a remote prospect. Anglo's interest, therefore, represented the breakthrough Captain Louw had spent years pursuing. For the first time, experienced mining geologists would evaluate the discovery using modern exploration techniques rather than the limited prospecting methods available to a small private syndicate.

Anglo American's geologists confirmed that uranium mineralisation occurred over a considerable area, and the company embarked on geological mapping, trenching, diamond drilling and underground exploration to determine the deposit's economic potential. Yet the results produced a puzzle that would define the next decade of Rössing's history. The uranium grades consistently appeared too low compared with the deposits that then dominated global production. Rich underground mines in Canada's Beaverlodge district, the Belgian Congo and parts of the western United States contained significantly higher uranium concentrations, making them far easier to evaluate using the economic models of the day.

The problem was not that Anglo had failed to find uranium.

On the contrary, the company confirmed that the mineralisation extended through large bodies of alaskite granite. The difficulty lay in interpreting what those results meant. During the 1950s, mining engineers judged uranium deposits largely by grade because most operating mines extracted relatively small volumes of exceptionally rich ore through underground methods. Rössing did not resemble those deposits. Its uranium occurred in vast but comparatively low-grade alaskite intrusions that could not easily be assessed using conventional thinking.

The enormous tonnage that would later become the deposit's greatest strength was, at the time, regarded as a disadvantage because no one had yet demonstrated that such a low-grade orebody could be mined profitably on an industrial scale.

With uranium prices uncertain, processing technology still evolving, and the infrastructure requirements of mining in the Namib Desert appearing formidable, Anglo American eventually concluded that the project did not justify further investment.

The company relinquished its interest, effectively walking away from what would later become one of the most valuable uranium deposits ever developed. It was a decision that has since become one of the most remarkable missed opportunities in African mining history. However, it should be viewed in the context of the knowledge available at the time rather than through the benefit of hindsight.

For Captain Louw and his partners, however, Anglo's withdrawal was a crushing setback. Years of effort had produced scientific confirmation that the mountains contained uranium, yet they still lacked a company willing to commit the capital needed to unlock their true potential. Lesser prospectors might have abandoned the project at that point, but the Louw family remained convinced that the geology was telling a different story from the economics.

They believed the size of the mineralised system would eventually outweigh its relatively modest grades, provided a company could be found that was prepared to think differently about uranium mining.

As the decade progressed, events

elsewhere in the world slowly began shifting that balance in Rössing's favour.

Commercial nuclear power programmes expanded rapidly across Europe, North America and Japan, increasing long-term uranium demand forecasts. At the same time, exploration technology improved dramatically.

Airborne radiometric surveys became more sophisticated, allowing geologists to detect radioactive anomalies across large areas of difficult terrain. At the same time, advances in diamond drilling, ore modelling and metallurgical testing enabled companies to evaluate deposits on a scale that had been impossible only a few years earlier.

The Geological Survey of South West Africa also continued improving its understanding of the central Namib's geology. Regional mapping increasingly suggested that the uranium-bearing alaskites identified by Captain Louw were not isolated occurrences but part of a much larger geological system extending across what is now recognised as the Erongo uranium province. That realisation fundamentally altered perceptions of the region. The question was no longer whether uranium existed in the Rössing Mountains but whether an entirely new style of uranium deposit had been overlooked because the industry had been searching for the wrong type of orebody.

By the early 1960s, the international uranium industry had also matured. Mining companies were beginning to appreciate that advances in large-scale open-pit mining, bulk materials handling and mineral processing could fundamentally change the economics of lower-grade deposits.

Instead of relying on exceptionally rich ore extracted from underground workings, engineers increasingly recognised that enormous volumes of lower-grade rock could generate attractive returns if mined efficiently and processed at sufficiently high throughput.

The concept would eventually revolutionise copper, iron ore and gold mining. At Rössing, it was about to revolutionise uranium.

The deposit, therefore, found itself in a very different world from the one Captain Louw had encountered in 1928. Uranium had become a strategic commodity, exploration technology had advanced, geological understanding of the Namib had improved, and the mining industry itself had begun embracing economies of scale that earlier generations of engineers had considered impractical.

What Rössing needed was not another prospector but a company prepared to challenge accepted wisdom and invest in proving that one of the world's largest low-grade uranium deposits could become one of its most profitable mines.

That comany arrived in 1966, when Rio Tinto Zinc secured the exploration rights and began the intensive drilling programme that would ultimately change not only the fortunes of the Rössing Mountains but also the future of Namibia's mining industry.

ROSSING

Rio Tinto says no... twice

By the early 1960s, the Rössing uranium deposit had already frustrated almost everyone who had become involved with it. Captain G. Peter Louw and the small syndicate he had established with his sons Graham and John, Major McLaren and Mr Beecroft remained convinced that the Rössing Mountains concealed one of the world's most significant uranium deposits. Yet, they had been unable to persuade the mining industry to share that belief. Anglo American had investigated the property extensively before concluding that the uranium grades were too low to justify development. At the same time, the technical challenges of mining such an enormous body of low-grade mineralisation in one of the world's harshest deserts appeared overwhelming. To many within the mining industry, the verdict seemed settled. To the syndicate, however, it simply meant they had not yet found the right partner.

Among those who refused to abandon the project was Major McLaren, whose confidence in the deposit only appeared to grow as more geological information became available. Having watched Anglo American walk away, McLaren became convinced that the company's assessment had been influenced less by the geology than by the limitations of mining technology and economic thinking during the 1950s. He believed the Rössing deposit represented a completely different class of uranium orebody whose value would only become apparent once it was evaluated based on its enormous size rather than its relatively modest grades. Determined to find a mining company prepared to consider that possibility,

he turned his attention to Rio Tinto Management Services (RTMS), the exploration arm of Rio Tinto Zinc.

According to RTZ's own historical records, McLaren travelled to London in 1958 to present the Rössing property to RTMS. He argued that the uranium-bearing alaskites of the Namib Desert represented a world-class opportunity and urged the company to undertake a detailed investigation. At the time, however, Rio Tinto Zinc was only beginning to expand its international exploration activities, and its overseas exploration budget remained relatively modest. Company executives acknowledged the property's geological interest but concluded they could not justify committing scarce exploration funds to such a remote and technically challenging prospect. Their decision was therefore not a rejection of McLaren's enthusiasm or even of the geology itself. It reflected a company whose priorities lay elsewhere and whose management considered Rössing a project that could wait.

McLaren refused to accept that conclusion. Over the next four years, the syndicate continued compiling geological information, expanding its understanding of the uranium-bearing alaskites and strengthening its conviction that earlier investigations had underestimated the deposit's true potential. The more evidence they gathered, the more convinced they became that Rössing's significance lay not in isolated pockets of rich uranium mineralisation but in the remarkable continuity of an immense mineralised granite body extending across the mountains. Armed with this new information, McLaren returned to RTMS in 1962, hoping that the additional evidence would persuade the company to reconsider its earlier decision.

The outcome proved deeply disappointing. Although the geological picture had improved considerably, RTMS remained unconvinced that the project justified the enormous investment it would require. Uranium prices were still uncertain, processing technology for such low-grade ore was relatively untested, and the logistical challenges of constructing a major mine in the Namib Desert appeared daunting. The company therefore declined McLaren's proposal for a second time, leaving the syndicate to wonder whether the mining industry would ever recognise the significance of what Captain Peter Louw had discovered more than three decades earlier.

Ironically, while RTMS was rejecting the Rössing project for the second time, events elsewhere within Rio Tinto Zinc were beginning to reshape the company's entire approach to large mineral deposits. One of the most influential developments was the company's experience at the Palabora copper mine in South Africa, where engineers and geologists demonstrated that advances in large-scale open-pit mining, high-capacity earthmoving equipment and modern mineral processing could

transform deposits previously regarded as uneconomic into highly profitable operations. Palabora challenged one of the mining industry's longest-held assumptions, namely that commercial success depended primarily on high ore grades. Instead, it showed that scale, efficiency and technological innovation could fundamentally alter the economics of low-grade deposits.

The lessons learned at Palabora arrived at a pivotal moment for Rio Tinto Zinc. In 1965, the company appointed Canadian mining engineer Ed Hunt as managing director, bringing a leader prepared to question conventional wisdom and revisit previously dismissed exploration opportunities into senior management. Hunt understood that mining technology was evolving rapidly and believed the industry needed to think differently about very large mineral systems. Under his leadership, projects that had once appeared too ambitious or too unconventional were reassessed against the backdrop of changing technology, growing mineral demand and a mining industry increasingly capable of operating on an unprecedented scale.

For Major McLaren, the changes within RTZ represented one final opportunity. Rather than accepting two rejections as the end of the story, he once again approached the company, arguing that the Rössing property

deserved to be evaluated in light of the new thinking emerging within international mining. This time, his arguments found a more receptive audience. RTZ recognised that while the uranium grades remained relatively modest, the deposit possessed one characteristic that few uranium prospects worldwide could match: extraordinary size. If modern engineering could unlock the value of low-grade copper deposits such as Palabora, there was growing reason to believe the same philosophy might apply to uranium.

In 1966, Rio Tinto Zinc secured the exploration rights over the Rössing property and assembled one of the most experienced multidisciplinary teams ever deployed to a uranium project in southern Africa. Geologists, mining engineers, metallurgists, surveyors and exploration specialists were tasked not merely with confirming the presence of uranium but with answering a far more important question that had defeated every previous investigation: could one of the world's largest low-grade uranium deposits become one of its most profitable mines? It was the beginning of a scientific and engineering programme that would eventually overturn decades of accepted wisdom in mining. It laid the foundations for an industry that would transform both Namibia and the global uranium sect

ROSSING

Rio Tinto's R300 million gamble

When Rio Tinto Zinc (RTZ) secured the exploration rights over the Rössing property in 1966, the company had acquired neither a mine nor even a proven ore reserve. It possessed a geological theory that had defeated almost every attempt to prove it commercially. Captain G. Peter Louw had first identified the radioactive rocks in 1928, Anglo American had investigated the property before abandoning it as uneconomic, and RTZ itself had twice declined invitations from Major McLaren to become involved. The company had finally agreed to investigate the deposit. Still, it now faced the challenge of determining whether decades of optimism by the Louw syndicate could withstand scientific scrutiny and commercial reality.

The years that followed became one of the most intensive exploration and feasibility programmes ever undertaken in southern Africa. Rather than relying on limited drilling or isolated geological observations, RTZ assembled a multidisciplinary team of geologists, mining engineers, metallurgists, surveyors and geochemists to evaluate every aspect of the deposit. Detailed geological mapping was undertaken across the Rössing Mountains, and

airborne and ground radiometric surveys refined the understanding of the uranium-bearing alaskite intrusions. At the same time, an extensive diamond-drilling programme systematically tested the continuity, thickness, and grade of the mineralisation. Every drill core was logged, sampled and analysed, allowing the company's geologists to build an increasingly detailed picture of what lay beneath the Namib Desert.

The results steadily confirmed what Captain Louw, Major McLaren and the G.P. Louw syndicate had believed for years. Rössing was not an isolated uranium occurrence but an immense and remarkably continuous alaskite-hosted orebody stretching across several kilometres of rugged desert terrain. Although the uranium grades remained relatively modest when compared with the richer underground deposits then being mined elsewhere in the world, the sheer scale of the mineralisation meant the deposit contained enormous quantities of uranium. The challenge confronting RTZ, therefore, shifted from proving the existence of uranium to determining whether modern engineering could unlock the value of such an immense low-grade resource.

Answering that question required much more than geology. Throughout the late 1960s, RTZ subjected the deposit to exhaustive metallurgical testing designed to establish how efficiently uranium could be recovered from the alaskite. Bulk samples were processed in pilot plant trials; engineers investigated crushing and grinding characteristics; metallurgists refined acid leaching and solvent extraction techniques; and recovery rates were repeatedly tested under different operating conditions. At the same time, mining engineers developed successive pit designs, calculated stripping ratios, modelled production schedules and examined whether the orebody could sustain the high production rates necessary to make a low-grade operation commercially successful. Each technical study reduced another layer of uncertainty that had previously discouraged investment.

As confidence in the deposit grew, the project entered an even more demanding phase. RTZ commissioned detailed engineering and feasibility studies covering every aspect of the proposed operation, recognising that success would depend as much on infrastructure as on geology. Specialists examined water requirements for the processing plant, evaluated power supply options, designed crushing and milling circuits, planned workshops, tailings storage facilities and transport systems, and assessed the logistical implications of constructing one of the largest industrial complexes ever contemplated in the Namib Desert. Simultaneously, the company worked to secure the commercial

foundations of the project by negotiating uranium sales and engaging potential customers, recognising that a development of this magnitude required long-term confidence in international demand before construction could even be considered.

These studies unfolded against a rapidly changing international backdrop. As civilian nuclear power programmes expanded across Europe, North America and Japan, governments increasingly viewed uranium as a strategic commodity, and utilities sought secure long-term supplies to fuel a growing fleet of nuclear reactors. Improvements in open-pit mining technology, bulk earthmoving equipment and mineral processing were also changing long-held assumptions about the economics of low-grade deposits. Projects such as Palabora had already demonstrated that enormous orebodies could become profitable through scale and

engineering innovation rather than exceptionally rich grades, and RTZ's technical teams increasingly concluded that the same principle could apply to uranium.

By the early 1970s, nearly seven years of exploration, drilling, laboratory testing, engineering design, market analysis and financial evaluation had converged into a single recommendation. The evidence assembled by RTZ's geologists and engineers demonstrated that the Rössing deposit could support one of the world's largest open-pit uranium mines, provided the company was prepared to commit the unprecedented capital required to transform a remote desert prospect into a fully integrated mining operation. It was a bold conclusion because the project challenged almost every accepted principle of uranium mining. Instead of relying on exceptionally rich ore, it proposed generating value through the efficient extraction and processing of enormous volumes of lower-grade material, a concept few companies had previously been prepared to embrace.

The final decision rested with the Rio Tinto Zinc board. After reviewing the exploration results, feasibility studies, engineering designs, metallurgical test work, uranium market forecasts and financial evaluations, the board approved the development of the Rössing mine in August 1973 at an estimated capital cost of R300 million, making it one of the largest mining investments ever undertaken in southern Africa. The approval represented far more than authorisation to build another mine. It was a decisive endorsement of an entirely new philosophy of uranium mining and a vote of confidence that technological innovation, economies of scale and careful engineering could overcome geological grades that earlier generations had regarded as uneconomic.

For Captain Peter Louw's family and the small syndicate that had spent decades defending the significance of the Rössing discovery, the decision represented the culmination of a remarkable journey that had begun with the collection of an unusual rock in the Namib Desert forty-five years earlier. The scepticism of the mining industry had finally given way to belief, the prospect had become a project, and the scientific debate over whether Rössing could become a mine had finally been settled. The next challenge would be even greater. RTZ now had to transform one of the world's most ambitious mining proposals into a working operation capable of proving that its R300 million gamble had been justified.

ROSSING

Building the world's largest uranium mine

By the time Rio Tinto Zinc's board approved a capital investment of R300 million in August 1973, the Rössing project had already become far more than one of the world's most ambitious mining developments. It was emerging as one of the most politically contested resource projects of the twentieth century. Engineers were preparing to construct what would become the world's largest open-pit uranium mine at the very moment that the United Nations, anti-apartheid movements and several governments were questioning whether the mine should be built at all. Namibia remained under South African administration despite the United Nations having revoked Pretoria's mandate over the territory in 1966 and the International Court of Justice subsequently declaring South Africa's continued presence illegal. In 1974, the United Nations General Assembly adopted Decree No. 1 for the Protection of the Natural Resources of Namibia, declaring that no natural resources could be exploited or removed from the territory without the consent of the United Nations Council for Namibia. From the outset, therefore, Rössing was not merely a mining project. It was an engineering feat unfolding against one of the Cold War's most contentious political and legal battles.

Following the investment decision, the Rössing Mountains were transformed into one of the largest construction sites in southern Africa.

What had been an isolated granite outcrop in the Namib Desert quickly filled with heavy earthmoving equipment, construction camps, engineers, surveyors, artisans and thousands of construction workers drawn from Namibia, South Africa and abroad. Rio Tinto Zinc was not simply opening another open-pit mine. It was constructing an integrated industrial complex capable of mining and processing millions of tonnes of uranium-bearing ore every year, a project that demanded technology, engineering expertise and financial resources on a scale the territory had never witnessed before.

The work extended far beyond excavating an open pit. Contractors simultaneously constructed crushing and milling circuits, one of the world's largest uranium processing plants, acid leach facilities, solvent extraction and precipitation circuits, tailings storage facilities, workshops, warehouses, laboratories, administration buildings and maintenance infrastructure. Roads had to be upgraded to move oversized equipment across the desert. In contrast, new electricity and water infrastructure had to be developed to sustain an operation that would eventually become one of Namibia's largest industrial consumers of both resources. Every section of the mine had to be designed to operate continuously because the project's economics depended not on exceptionally rich ore but on processing enormous volumes of lower-grade material with maximum efficiency. It was this philosophy of scale that distinguished Rössing from virtually every uranium mine operating elsewhere in the world.

The project also required something no previous Namibian mining development had attempted on such a scale: the creation of an entirely new town. Arandis was developed as a purpose-built mining community because there was no existing settlement capable of supporting the thousands of people needed to build and later operate the mine. Housing, schools, recreational facilities, medical services, engineering workshops, municipal infrastructure and public amenities formed part of the overall development programme, transforming a previously uninhabited stretch of the Namib Desert into a permanent community whose fortunes would become inseparable from those of Rössing. The town represented an acknowledgement that the mine would not simply operate for a few years but would become a long-term industrial anchor for Namibia's emerging uranium sector.

While construction gathered pace in the desert, Rio Tinto Zinc was also assembling an international ownership structure capable of supporting one of the largest mining investments ever undertaken in southern Africa. Rössing Uranium Limited was established as an international venture led by RTZ, which remained both the operator and principal shareholder, while other institutional investors participated in financing the project. Among the most significant was the Iranian Foreign Investments Company (IFIC), which acquired a 15% shareholding in 1975 during the reign of Shah Mohammad Reza Pahlavi. At the time, Iran was pursuing one of the world's most ambitious civilian nuclear power programmes. It sought equity investments in overseas uranium projects to secure long-term fuel supplies for the reactors it planned to construct. The investment attracted little international attention when it was concluded because Iran was then regarded as a close Western ally. Only after the 1979 Islamic Revolution would the Iranian shareholding become one of the mine's most politically sensitive issues.

Even as the mine took shape, political opposition intensified. The United Nations Council for Namibia argued that South Africa had no legal authority to issue mining rights in the territory and maintained that uranium extracted from Rössing belonged to the Namibian people. Anti-apartheid organisations, church groups, trade unions and solidarity movements launched international campaigns urging electricity utilities, governments and nuclear fuel buyers to reject Rössing uranium. The Anti-Apartheid Movement in Britain published The Rössing File, documenting the political and legal arguments against the mine. At the same time, debates in the British Parliament questioned whether continued imports of Namibian uranium undermined international efforts to end South Africa's administration of the territory. The controversy elevated Rössing from a mining project into one of the most closely scrutinised natural resource developments in the world.

Rio Tinto Zinc consistently rejected the allegations that its operations were unlawful, arguing that it was conducting business under the legal framework then applicable in South West Africa and that

the project had been developed through valid commercial agreements. The company also pointed to the economic benefits flowing from the mine, including employment, infrastructure development, technical training and export earnings. As international criticism mounted, RTZ continued honouring long-term uranium supply contracts with electricity utilities in Europe and Japan, many of which regarded Rössing as an important source of fuel at a time when nuclear power generation was expanding rapidly across the industrialised world.

Despite the political disputes, construction progressed remarkably quickly. Within less than three years, the mine had evolved from a remote exploration project into one of the largest industrial developments ever undertaken in southern Africa. Commissioning of the processing plant began during the first half of 1976 as engineers systematically tested the crushing, milling, leaching and recovery circuits before introducing uranium-bearing ore into the system. According to Rössing's historical records, the plant produced its first yellowcake on 15 June 1976, followed by the first drum of uranium oxide on 25 June 1976, marking the successful completion of a project that many industry observers had once considered technically impossible.

The achievement carried significance far beyond the successful commissioning of a new mine. Rössing had demonstrated that a low-grade alaskite-hosted uranium deposit could be mined profitably through large-scale open-pit methods, fundamentally changing the economics of uranium mining. It had also survived years of political controversy, legal challenges and international opposition before producing a single pound of uranium. By the time the first shipments left Namibia, Rössing had already established itself as one of the most remarkable mining developments of its generation. Its greatest contribution, however, still lay ahead. In proving that Namibia's low-grade uranium deposits could be developed successfully, the mine would encourage a new generation of explorers to search for similar deposits across the central Namib, laying the foundations for the uranium province that exists today.

ROSSING

The next chapter in Rössing's story

When the first drum of uranium oxide left the Rössing processing plant in June 1976, few could have imagined that the mine would still be operating half a century later. The world that gave birth to Rössing has since disappeared. South West Africa became the independent Republic of Namibia, the Cold War ended, apartheid collapsed, uranium markets experienced dramatic booms and busts, Rio Tinto exited after more than four decades of stewardship, and a Chinese state-owned nuclear company assumed control of one of the world's most recognisable uranium mines. Yet through every political, economic and corporate transformation, the granite hills that Captain G. Peter Louw first explored in 1928 have continued producing uranium. The story of Rössing, therefore, did not end with its construction or even with Namibia's independence. Instead, the mine entered a new chapter that continues to shape the country's mining industry today.

Namibia's independence in March 1990 marked the first major turning point in that journey. For almost fourteen years, Rössing had operated under South African

administration while remaining the subject of international political controversy. Independence fundamentally altered that narrative. The mine was no longer viewed primarily through the lens of international law and the anti-apartheid struggle but increasingly as one of Namibia's most strategic economic assets.

The new government retained mining as a cornerstone of economic development while introducing legislation that strengthened national oversight of mineral resources and encouraged greater Namibian participation in the industry's growth. Rössing, once criticised internationally as a symbol of South Africa's occupation, became one of the country's largest taxpayers, employers and exporters, contributing significantly to government revenue, foreign exchange earnings and industrial development.

Under Rio Tinto's ownership, the mine continued to evolve technologically and operationally. Successive investments improved mining efficiency, expanded processing capacity, strengthened environmental management and extended the operation's productive life well beyond what many had expected during the 1970s. The company invested heavily in training Namibian professionals, developing generations of engineers, geologists, metallurgists, environmental specialists and artisans who would later occupy senior positions across Namibia's mining industry. Procurement policies increasingly favoured Namibian suppliers, while community investment programmes expanded into education, healthcare, enterprise development and environmental stewardship, reinforcing the mine's role as one of the country's leading corporate citizens.

Like every long-life mining operation, however, Rössing also had to navigate changing market conditions. The uranium industry experienced prolonged downturns following the slowdown in global nuclear power development during the 1980s and 1990s. In contrast, the Fukushima Daiichi nuclear accident in Japan in 2011 triggered another severe decline in uranium prices, forcing producers worldwide to reassess operations. Many mines entered care and maintenance, development projects were postponed, and exploration expenditure collapsed. Rössing itself came under intense commercial pressure as management focused on reducing costs, improving productivity and extending the mine's economic life in an increasingly challenging market. The operation survived because of continuous operational improvements, disciplined cost management and confidence that nuclear power would eventually regain its place within the global energy mix.

By the late 2010s, another profound change was unfolding. Rio Tinto, which had discovered, financed, built and operated the mine for more than four

decades, was reshaping its international portfolio around commodities such as iron ore, copper, aluminium and lithium. Uranium no longer formed part of its long-term strategic focus. In November 2018, the company announced that it had agreed to sell its 68.62% shareholding in Rössing Uranium Limited to China National Uranium Corporation Limited (CNUC), a subsidiary of China National Nuclear Corporation (CNNC), for up to US$106.5 million, subject to regulatory approvals.

The transaction was completed in 2019, bringing to a close one of the longest and most significant chapters in Rio Tinto's global mining history.

The acquisition represented far more than a simple change in ownership. It reflected a broader shift in the global uranium industry, with China rapidly emerging as the world's fastest-growing builder of nuclear power stations and seeking secure, long-term uranium supplies to support its expanding reactor fleet. For CNNC, acquiring Rössing provided access to one of the world's best-known uranium mines and strengthened China's international uranium supply chain. For Namibia, the transaction demonstrated that despite changes in ownership, the country's uranium industry remained an attractive destination for long-term international investment. The mine continued to operate without interruption, preserving employment, sustaining production, and maintaining its contribution to the national economy.

Under CNNC's ownership, attention has increasingly focused on securing the mine's future beyond its current life-of-mine plan. Ongoing exploration,

resource conversion drilling, mine planning, and plant optimisation programmes continue to identify opportunities to extend production while improving operational efficiency. The company has also intensified investment in environmental management, energy efficiency, digital technologies, safety systems and skills development, recognising that the modern mining industry is increasingly measured not only by production volumes but also by environmental performance, responsible resource management and social impact. At the same time, renewed international interest in nuclear power as a reliable source of low-carbon electricity has strengthened long-term demand for uranium, positioning Rössing to benefit from the global energy transition.

Today, Rössing stands at an important moment in its history. Nearly fifty years after producing its first uranium oxide, the mine continues to underpin the economy of Arandis, support thousands of direct and indirect livelihoods and contribute substantially to Namibia's export earnings. Around it, an entire uranium province has emerged. Mines such as Husab and Langer Heinrich now operate alongside Rössing, while projects including Etango, Tumas and others move steadily towards development. The landscape that Captain Peter Louw once traversed on foot has become one of the world's most important uranium-producing regions, attracting sustained international investment and positioning Namibia as a leading supplier of uranium to global markets.

As Rössing prepares to celebrate its fiftieth anniversary in June 2026, its legacy can no longer be measured solely by tonnes of uranium oxide, export revenues or dividends distributed to shareholders. Ownership has changed, governments have changed, technologies have evolved, and geopolitical alliances have shifted, yet the mine has remained a constant thread running through Namibia's economic development. It has outlived the company that built it, survived political controversy, weathered some of the most difficult periods in the history of the uranium market, and entered a new era under Chinese ownership with the ambition of producing uranium for many years to come.

Nearly a century has passed since Captain G. Peter Louw paused in the Rössing Mountains to examine an unusual radioactive rock. In that time, the discovery has outlived governments, political systems, commodity cycles and corporate ownership. Rio Tinto's bold gamble transformed a geological curiosity into the world's largest open-pit uranium mine. That mine became the foundation of Namibia's uranium industry, and today its story continues under a new generation of custodians. The names on the share register may have changed, but the significance of Rössing has not. It remains the mine that revealed Namibia's uranium future—and it continues to shape the country's mining story as it embarks on its next fifty years.

The Extractor
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