



URANIUM IN NAMIBIA : YELLOWCAKE FEVER

Selma el Obeid

Observatoire de l'Afrique centrale et australe

Note n. 22
2021



— Note réalisée par l’Ifri au profit de la Direction générale
des relations internationales et de la stratégie du ministère des Armées —

Table des matières

INTRODUCTION	5
FROM AN ILLEGAL TO A LEGAL BUSINESS.....	8
URANIUM IN THE NAMIBIAN ECONOMY	12
A KEY INVESTOR: CHINA.....	18
THE CHALLENGES OF THE URANIUM SECTOR	22
Legislation inadequacy and non-proliferation issues.....	24
Environmental concerns and health hazards	25
Labor disputes.....	26
CONCLUSION	27

Author

Selma el Obeid is freelance consultant based in France. Her multidisciplinary background includes research and development within SECADEV in Chad, the Ministry of Environment & Tourism in Namibia and the Institute of Developmental Studies in Sudan. Partner for nine years of RAISON (Research and Information Services of Namibia), she co-authored seven books on Namibia's environmental and rural conditions. Selma is a graduate of the Faculty of Agriculture, University of Khartoum, and has a Master degree in Social and Economic Development from the Sorbonne University and a Master of Public Administration from Harvard Kennedy School.

Abstract

Mineral revenues are the driving force behind Namibia's economic performance. Namibia is rich in mineral resources which include uranium, diamond, copper, gold, lead, lithium and zinc. However, these mineral riches are not always allocated and utilized in a transparent manner and seem to benefit disproportionately a small number of wealthy elites, many of them affiliated with the ruling party SWAPO.

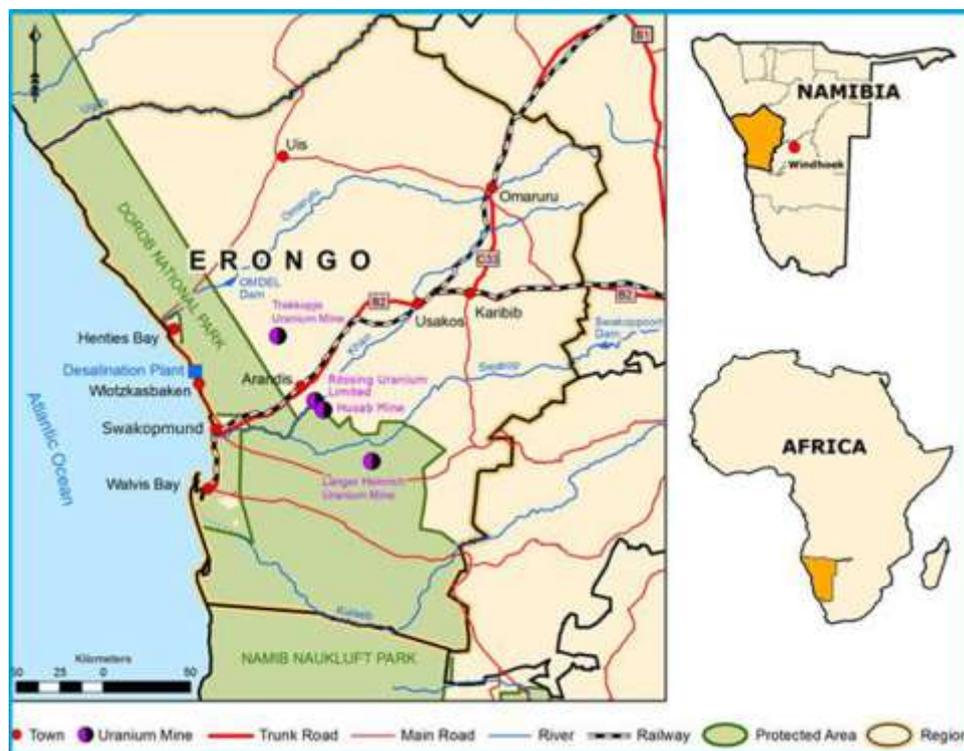
After years of a global depressed uranium market, Namibia's production of uranium has grown and it now ranks the 4th uranium producer in the world. The driver of this rise is China that needs to secure its uranium supply. Because of investments by Chinese companies which now have majority ownership of the two most productive mines, the uranium production in Namibia is expanding and projected to expand in the coming years as the Husab mine ramps up to full capacity. While China's state-owned companies dominate the operational mines, Australian companies lead the exploration projects.

However, the Namibian uranium mining sector is surrounded by problems concerning the distribution and transparency of the mining rent, health and safety, environmental impacts, labor disputes, legislative controls and non-proliferation issues.

Introduction

Uranium production in Namibia has increased by 25 % in the last decade, despite a depressed international market. In 2018, Namibia produced 10 % of uranium world production and ranked the 4th largest producer, behind Kazakhstan, Canada, and Australia¹. Namibia's uranium boom has been driven by Chinese investments that established the Husab mine and improved uranium production at Rössing. China's long-term investment policy and the Namibian government's policy of emphasizing the development of mineral resources as the primary means to boost its economy have justified these investments.

Figure 1 : Map of Namibia and Erongo region



Source : Rössing Annual Environmental Management Report

¹ Uranium 2020: Resources, Production and Demand. A joint Report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency, OECD 2020.

Uranium is mined in the Namib desert, mainly in the conservation area of the Namib Naukluft National Park, which is closely monitored by environmentalists. Namibian uranium is a low-grade deposit which is not associated with other minerals that could add value to the mining operation. Despite these odds, Namibia is the world's 4th largest producer of uranium (see figure 2), producing 10 % of global uranium output. Facilitated by its close relations with the ruling party since independence (the South West Africa People's Organization, SWAPO), China is the dominant investor and has played a major role in boosting the embattled uranium mining sector as it needs a secure uranium source of supply for its fast growing nuclear energy sector.

Namibia has a favorable mining environment. The country has a reputation for political and economic stability and good infrastructure including Walvis Bay seaport, and a sound road networks. These, coupled with relatively low mining taxes and modest regulations, have created attractive conditions for foreign investors. However, with uranium being classified as a strategic mineral, Namibia's regulations are changing. State-owned Epangelo Mining Company currently holds some exploration and mining rights, due to a call to government to secure Namibia's ownership of its mines. For now, however, Epangelo has to overcome its challenge of limited financial capacity. Debt-related concerns are mounting, not only about the loan used to fund Epangelo's share in Husab mine, but also the rise of Namibia's debt to China which currently accounts for about 10 % of Namibia's external debt. Currently, a new wave of interest in uranium has been triggered by expectations of improved uranium prices. This follows Biden's clean energy plan² and the release of China's new five-year plan in March 2021, confirming their pursuit for nuclear power among other clean energy options³.

The uranium revenues may be vital for Namibia's social and economic development but it all depends how these revenues are used and distributed. Despite its abundant natural resources and its upper-middle class status, Namibia ranks 130 out of 189 countries in the 2019 Human Development Report⁴. The uranium sector's contribution to inclusive growth and poverty reduction has been so far questionable and several serious problems remain unsolved (distribution and transparency of the

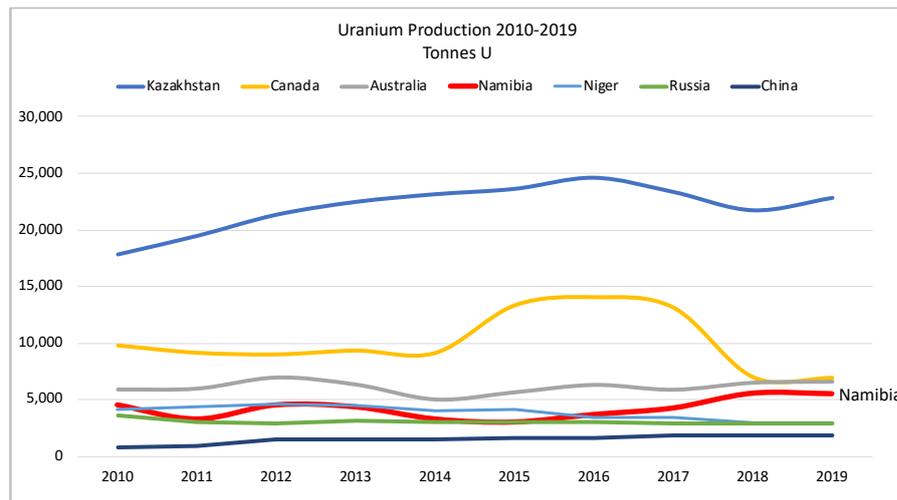
2 "Biden's clean energy plan fueling great expectations for uranium price", Mining Review Africa webpage, 14 June 2021

3 "Three key points for power generation from China's five-year plan", Power Technology webpage, 9 March 2021.

4 United Nations Development Program, Human Development Report 2020. <http://hdr.undp.org/>

mining rent, health and safety, environmental impacts, labor disputes, legislative controls and non-proliferation issues).

Figure 2 : Uranium production 2010-2019



Source: World Nuclear Association

This research paper explores the history of uranium industry in Namibia, its contribution to the national economy and challenges and the key role of China in reviving the uranium sector.

From an illegal to a legal business

Mining in the country goes back to the 17th century when copper was mined to make agricultural tools in Otavi area in the north central region⁵. Commercial mining of copper and silver started in the 19th century, and diamond mining started around Lüderitz as early as 1908. Low-grade uranium deposits were discovered in the Namib desert in 1928 by the geologist Captain Peter Louw. However, its exploration by the government of South Africa did not start until the mid-60s. Three deposits were then identified at Rössing, Trekkopje, and Langer Heinrich. The British Rio Tinto Group obtained rights to the Rössing resource in 1966, a few months before the General Assembly terminated the mandate of South Africa over Namibia⁶. Encouraged by the reviving market for uranium (after the oil crisis of 1973), commercial mining began in 1976 at Rössing Mine⁷. At the time, this was viewed as highly controversial due to the heightened activity of the anti-apartheid movement and the international mobilization for Namibia's independence. SWAPO opposed the Rössing mining operation and considered it illegal. In a letter to the British Labour Party Study Groups in February 1976, SWAPO wrote: "It is our view that foreign investment in Namibia is one of the major factors contributing to the continuing presence of South Africa's illegally occupying forces. The development of the uranium mine at Rössing, jointly by Rio Tinto Zinc Corporation and the Industrial Development Corporation of South Africa, represents the largest single investment in Namibia. Foreign companies such as RTZ are taking advantage of the immediate political situation in Namibia, and it is therefore necessary to emphasize to them and to all foreign companies investing in Namibia, that all mining titles and temporary prospecting rights granted after 1966 are illegal, and that they constitute a criminal exploitation of irreplaceable natural resources which rightfully belong to the people of Namibia"⁸.

⁵ Chamber of Mines of Namibia, webpage accessed on June 2021.

⁶ Rio Tinto a British firm formed in 1873. Rössing Uranium Ltd was formed on February 11, 1970.

⁷ Namibia uranium production started in 1976 at the height of nuclear energy expansion. The global nuclear capacity, has increased by 24% in the period 1970 – 1980. Source: Power Reactor Information System (PRIS).

⁸ Alun Roberts, "The Rossing File: The Inside Story of Britain's Secret Contract for Namibian Uranium", CANUC, 1 January 1980.

Rössing Mine ignored Decree No.1 issued by the UN Council for Namibia (UNCN)⁹, which prohibited further mining operations in Namibia without the UNCN's permission¹⁰. Moreover, Rio Tinto, in defiance of international law, managed to secure uranium ore sale contracts¹¹. Investigators found that the main contracts were signed with the United Kingdom Atomic Energy Authority, and utilities in Germany and Japan¹². These contracts were in violation of international law and defied repeated calls by the United Nations for all member states to refrain from any dealings with South Africa's illegal administration of Namibia.

Also, the ownership of Rössing mine was vague. Although the majority of shares were owned by Rio Tinto, minority ownership wasn't clear. Some initial partners of Rio Tinto were divulged, such as South African Industrial Development Corporation, Total (Minatome) and Urangesellschaft. However, there was no mention of the 15 % shares bought in 1975 during the Shah era by the Iranian government¹³. Even after independence and until the year 2003, official Namibian reports to the International Atomic Energy Agency did not mention these Iranian shares¹⁴. The Namibian government was silent about these controversial shares that were only disclosed in 2005. Whether Iran ever received Namibian uranium ore is still a mystery. However, Iran has no right to uranium takeoff and considered "passive" shareholder as Rössing stopped any financial payments to Iran Foreign Investments Co. (IFIC) since 2007 and didn't assist to the board of directors since 2010¹⁵. Today, both Rössing Uranium and the Government of Namibia have confirmed on various occasions that

⁹ UN General Assembly establishes UN Decree No.1 on 27 September 1974. The Decree bans all further mining operations in Namibia and allows for any mineral resources removed from the territory to be seized and held in trust on behalf of the UN Council. Source: A publication of the United Nations department of political affairs, Trusteeship and decolonization, Vol.1, No.3, December 1974.

<https://www.un.org>

¹⁰ In 1966, the General Assembly terminated the mandate of South Africa over Namibia and placed the country under the direct responsibility of the United Nations. The responsibility of administering the country until it became independent was entrusted to the United Nations Council for Namibia.

¹¹ South Africa Nuclear Energy Act of 1982 was prohibiting the disclosure of details of uranium production, export and sales from Rössing, as well as from South Africa. Source: The Gulliver Rössing Uranium Ltd Dossier (<http://www.radiobridge.net>)

¹² Roger Moody, "The Gulliver File - Mines, people and land: a global battleground", Minewatch, London, 1992.

¹³ In 1974 Shah Reza Pahlavi established the Atomic Energy Organization of Iran (AEOI) and launched the construction of 23 nuclear power plants and the development of a full nuclear fuel cycle. "Timeline of Nuclear Diplomacy with Iran", www.armscontrol.org

¹⁴ "RTZ Corporation 56.3%, Namibian Government 3.5%, Rio Algom Limited 10%, IDC South Africa 10% and Others 20.2%". Uranium 2003: Resources, Production and Demand, OECD 2004, page 178.

¹⁵ "Iran's stake in Rössing mine lingers on", Africa Intelligence, 16 July 2021.

they take seriously the restrictions on uranium sale to Iran and abide by the UNSCR resolution 1737¹⁶. In a visit to Windhoek in 2017, IFIC director Farhad Zargari met with president Hage Geingob and the minister of Mines and Energy Obeth Kandjoze and declared to be “on a fact-finding mission”¹⁷. The Namibian government has sought to buy the Iranian shares through Epangelo Mining but nothing has materialized thus far¹⁸.

Picture 1 Iranian investors explore Namibian investment potential



Source : New Era Newspaper, 22 May 2017

Once the Tripartite Accord that granted independence to Namibia was signed in 1988, the company operating the Rössing mine established a good relationship with the SWAPO leaders despite declarations such as: “RTZ will have to pay the price for its years of piracy. SWAPO will judge such companies harshly when Namibia achieves independence”¹⁹. The newly independent government recognized the importance of Rössing mine to the Namibian economy (in 1989 Rössing Mine provided an average

¹⁶ United Nation Security Council Resolution 1737, 23 December 2006. The resolution imposes sanctions against Iran for failing to stop its uranium enrichment program following resolution 1696. It imposes a ban on the supply of nuclear-related technology and materials and imposes assets freeze on key individuals and companies related to the enrichment program. Sanction on Iran has been further broadened by the following resolutions: Resolution 1747 of March 24, 2007, Resolution 1803 of 3 March 2008 and Resolution 1929 of 9 June 2010. Resolution 2231 of 20 July 2015 endorsing the nuclear deal of Iran and the P5+1.

¹⁷ “Iranian investors explore Namibian investment potential,” The New Era, 22 May 2017.

¹⁸ “Government eyes Iran’s shares in Rössing”, The Namibian, 18 April 2012.

¹⁹ Alun Roberts, “The Rössing File: The Inside Story of Britain’s Secret Contract for Namibian Uranium”, CANUC, 1 January 1980.

of 35% of Namibia's total export earnings)²⁰ and it formally announced it would not nationalize the mining industry²¹. According to WISE and SOMO report “Rössing Uranium has never had to sign a mining agreement with the Namibian state, and it is only since 2006 that Rössing had to pay royalties to the Namibian state”²².

For thirty years, Rössing was the only operational uranium mine in the country. The second uranium mine, Langer Heinrich, became operational in 2007. Encouraged by high uranium prices, the beginning of the 2000s were known as “the years of uranium rush” when the Ministry of Mines and Energy generously issued Exclusive Prospecting Licences (EPLs)²³. This led the government to place a moratorium on the granting of uranium prospecting licenses to regulate better the uranium sector and to develop new policies and legislation, recognizing that water and energy requirements for uranium mining are of concern. The moratorium was lifted in January 2017. Since then and until the end of 2019, 52 new licenses were granted²⁴, an indication that the Namibian government now strongly supports the expansion of the uranium-mining industry.

²⁰ Roger Moody, "The Gulliver File - Mines, people and land: a global battleground", Minewatch, London, 1992

²¹ Gabrielle Hecht, “Being Nuclear: Africans and the Global Uranium Trade”, MIT Press, 2014.

²² Uranium from Africa, WISE & SOMO, Amsterdam, June 2011.

²³ By the end of 2007, 39 Exclusive Prospecting Licenses (EPLs) and three Exclusive Reconnaissance Licenses (ERLs) had been granted to 21 companies. Source: “The Namibian Uranium Model”, Namibian Uranium Association, 2014.

²⁴ Uranium 2020: Resources, Production and Demand. A joint Report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency, OECD 2020.

Uranium in the Namibian Economy

Namibia's economy is highly dependent on earnings generated from exports which are dominated by minerals as shown in the table below. That makes mining the pillar of Namibia's economy, contributing about 10 % of GDP²⁵ in 2020 and more than 50 % of export income²⁶. Of course, the reliance on mineral exports makes Namibia's economy vulnerable to international price volatility. A prolonged period of low uranium market prices resulted in mine closures and reduced exploration in Namibia and worldwide. Consequently, as uranium and diamond prices and demand fell, so did Namibia's GDP growth which has been in recession since 2016 (from 6 % in 2010 to -1.1 % in 2019). Uranium prices are starting to recover, a trend that has not been observed since the Fukushima disaster in 2011²⁷.

Figure 3 : Uranium price 2002 – 2021



²⁵ Bank of Namibia annual report 2020.

²⁶ The world factbook, CIA.

<https://www.cia.gov>

²⁷ The average uranium spot price declined from \$49/lb in 2012 to \$32/lb in 2020. Bank of Namibia annual report, 2020. "Is uranium coming back in vogue ?", The Northern Miner, 7 May 2021.

²⁸ See <https://www.indexmundi.com>

Table 1. Namibia’s 5 top exports in 2020 (value US\$)

Copper	29%
Diamonds	19%
Uranium	11%
Fish	10%
Gold	7%

Source: UN Comtrade

Uranium mining and exploration is now focused in the Erongo region, “the uranium province” in western-central Namibia within the Namib Naukluft Park. In 2018, Namibia produced 10 % of uranium world production and ranked the 4th largest producer, behind Kazakhstan, Canada, and Australia²⁹. Namibia will become the second largest uranium producer in the world when Husab mine works at full capacity and as new uranium fields are brought into production. In 2019, Husab mine ranked second in size among uranium mines worldwide (6 % of world production)³⁰. Namibia is endowed with 7 % of global identified resources of uranium (<USD 130/kgU)³¹. Uranium exports in 2020 slightly exceeded US\$ 800 million, and represented 11 % of total Namibian exports³². As diamond contributions to GDP have declined³³, that of uranium has been steadily increasing from 1 % in 2016 to 2.5 % in 2020 as shown in table 2.

²⁹ Uranium 2020: Resources, Production and Demand. A joint Report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency, OECD 2020.

³⁰ World Nuclear Association.

³¹ Uranium 2020: Resources, Production and Demand. A joint Report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency, OECD 2020.

³² Bank of Namibia annual report 2020.

³³ “Uranium set to overtake diamonds as Namibia’s largest foreign currency earner”, Mining.com, 5 August 2011.

Table 2. Percent mining and quarrying contribution to the GDP

	2016	2017	2018	2019	2020
Uranium	0.9%	1.0%	1.2%	2.2%	2.5%
Diamond	4.6%	3.9%	4.4%	3.3%	3.1%
Metal ores	3.3%	2.7%	2.5%	3.2%	3.9%
Other mining & quarrying	0.7%	0.6%	0.8%	0.8%	0.6%
Total Mining & quarrying	9.4%	8.2%	8.8%	9.4%	10.1%

Source: Bank of Namibia annual report 2020

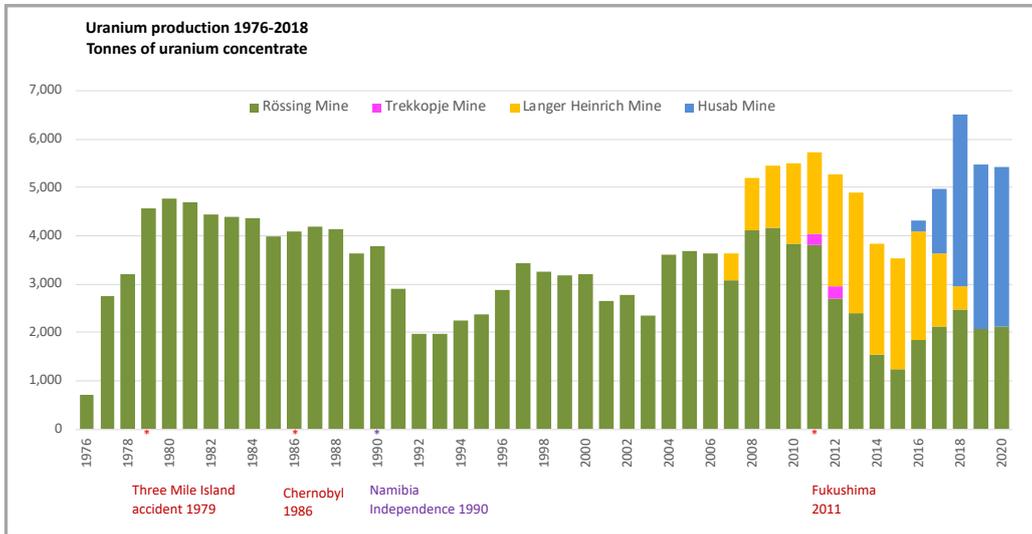
Namibia has four open-pit uranium mines, two developing mines and seven exploration projects, as shown in table 3. The Namibian government is in favor of expanding the country's uranium-mining industry and has established a regulatory framework for managing the sector. Uranium is one of the six mineral resources that were declared "strategic" by the Namibian government in 2011³⁴, which meant that no new exploration licenses of these six minerals may be granted without the involvement of the state-owned Epangelo Mining company. Indeed, the State-owned Epangelo Mining Company has exclusive exploration and mining rights on these six minerals. The aim of Namibia's state-owned firm, as expressed by then Mines and Energy Minister Isak Katali, is that "the Namibian citizen can fully reap the benefits arising from the rich endowment of our mineral resources"³⁵. However, ownership of uranium produced in Namibia has changed with China's acquisition of two important mines. State-owned mining companies are dominating the uranium sector with 7 % owned by Epangelo Mining, 61 % by state-owned foreign companies and 32 % by private foreign companies³⁶.

³⁴ In April 2011, the Minister of Mines and Energy declared uranium, gold, copper, coal, diamonds and rare earth metals as strategic minerals.

³⁵ "Government pockets all rights to mine uranium", *The Namibian*, 21 April 2011.

³⁶ *Uranium 2020: Resources, Production and Demand. A joint Report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency, OECD 2020.*

Figure 4 : Metric tons of uranium concentrate produced per year



Data source: voconsulting.net³⁷

Currently two major mines, Rössing and Husab, cater for the majority of uranium production as shown in figure 4. Langer Heinrich still awaits uranium price recovery to resume production. Trekkopje mine is on care and maintenance since 2012. Orano³⁸ is the owner of the mine which acquisition has been surrounded by suspicion. The controversy started in 2007 when Areva (now called Orano) bought the Canadian start-up company UraMin for an inflated price of 2,5 billions US\$ which could have benefited politicians and officials in Namibia and South Africa³⁹. The transaction included UraMin's mineral rights in South Africa, Namibia and the Central African Republic. Buying the politically connected UraMin, Areva was expecting to get in return the South African nuclear tender for reactors and enrichment plant⁴⁰. Through his HG Consultancy, Hage Geingob has helped UraMin to renew its exploration license before it was sold to Areva⁴¹. Hage Geingob⁴², Trade minister at that time, approved Trekkopje an export processing zone status, allowing it to avoid paying

³⁷ "Gunhild von Oertzen and Detlof von Oertzen, "Radiation Safety Officer's Handbook", Namibian Uranium Institute, 2018, <https://voconsulting.net> .

³⁸ Areva was created in 2001 and in 2018 it became Orano, specializes solely on the activities of the nuclear cycle.

³⁹ "French nuclear frontrunner's toxic political dealings in SA", Mail & Guardian, 3 August 2012. Read here : <https://mg.co.za>

⁴⁰ "French nuclear frontrunner's toxic political dealings in SA", Mail & Guardian, 3 August 2012. Read here : <https://mg.co.za>

⁴¹ "Geingob won't testify in France", The Namibian, 20 August 2018.

⁴² "Namibia's Geingob strongly denies involvement in corruption", RFI, 10 April 2018.

taxes for five years, a dispensation not enjoyed by other uranium mines⁴³. Another 800 million euros was spent in an attempt to start production of the mine. For the time being Orano spends 10 million dollars a year for the maintenance of the site⁴⁴. A desalination plant and water distribution infrastructure were built at Wlotzkasbaken, about 30 km north of Swakopmund to cater for water supply to the site⁴⁵. It was inaugurated in 2010 in presence of Hage Geingob and Anne Lauvergeon, the then director of Areva⁴⁶. Legal dispute over the ownership of the desalination plant has been going for years as United Africa Group claims 50 % of the plant⁴⁷.

⁴³ Hage Geingob considers it the decision of government and not his decision. "SADC, RDC, Areva: entretien exclusif avec le président namibien Hage Geingob", RFI, 18 August 2018. <https://www.rfi.fr>

⁴⁴ "Areva : un scandale d'Etat qui couve depuis 20 ans", Challenges, 20 March 2015.

⁴⁵ "Areva is spending 240 million dollars (according to the Pomerol report by Alp Service; the Namibian press mentions the figure of 275 million dollars) to build the Erongo plant, which produces a maximum of 54,000 m³ / day ... which corresponds to a price of 4,444 euros per m³, in other words three times what we could expect. A world record". Marc Eichinger, *L'homme qui en savait beaucoup trop*, Massot Editions/Le Média, 2020, p130.

⁴⁶ At the inauguration ceremony Anne Lauvergeon said "I am very honored that Dr Hage Geingob has agreed to inaugurate this factory built by Areva in Namibia. His presence testifies to the country's confidence in the expertise of our group. We are confident that our partnership with Namibia will continue beyond mining activities". Areva Press release, 16 April 2010. Read here : <https://www.sa.areva.com>

⁴⁷ "Tilahun fights for desalination plant", The Namibian, 14 November 2014.

Table 3. Operational uranium mines and exploration projects.

Operational & non-operational mines	Primary Company	Country	Year opened	Status	Ownership (Shares in the mine)
Rössing Mine	Rössing Uranium	China	1976	Operational	69% China National Uranium Corporation Limited, 15% the Government of Iran, 10% IDC of South Africa, 3% Epangelo Mining, Namibia state-owned (with 51% of voting rights), 3% local individual shareholders.
Langer Heinrich Mine	Paladin Energy Ltd	Australia	2006	Care and maintenance since 2018	75% Paladin Energy Ltd (Australia), 25% Chinese National Nuclear Corporation (CNNC).
Husab Mine	Swakop Uranium	China	2014	Operational	90% Taurus Minerals Limited of Hong Kong (subsidiary of China General Nuclear Power Company (CGNPC), Uranium Resources Co. Ltd. and the China-Africa Development Fund, 10% Epangelo Mining
Trekkopje mine	Orano		2011	Care and maintenance since 2012	100% Orano (France). License was given in 2008
Developing mines					
Norasa uranium project	Forsys Metals Corporation	Canada	NA	Developing mine	100% Forsys Metal Corporation (Canada) license obtained 2006
Happy Valley	Zhonghe Resources	China	NA	Developing mine	58% China Nuclear Uranium Corporation (CNUC), a subsidiary of CNNC, 21% Namibia-China Mineral Resources Investment Development (Chinese private co.), 21% Springbok Investment Ltd. (Chinese private co.) Exploration license obtained 2007
Exploration projects					
Etango uranium mine project	Bannerman Resources Limited	Australia	NA	Completed Definitive Feasibility Study (DFS) and environmental permitting	100% Bannerman Resources Limited (Australia) license obtained 2008
Marenica project	Marenica Energy Ltd	Australia	NA	Drilling suspended	75% Marenica Energy Ltd (Australia), 20% Xanthos Mining Limited (Namibia), 5% Millennium Minerals (Australia)
Aussinanis project	Yellow Dune Uranium Resources	Australia	NA	Exploration	85% Deep Yellow (Australia), 10% Oponona Investments Ltd (Namibia), 5% Epangelo Mining.
The Omahola Project	Reptile Mineral Resources	Australia	NA	Exploration	95% Deep Yellow (Australia), 5% Oponona Investments Ltd (Namibia)
The Tubas project	Reptile Mineral Resources	Australia	NA	Exploration	idem
Nova Project	Deep Yellow Lted	Australia	NA	Exploration	39.5% Deep Yellow Ltd (Australia) and 39.5% Japan Oil, Gas and Metals National Corporation (JOGMEC), 15% Toro Energy Ltd (Australia), 6% Sixzone Investments Ltd (Namibia).
Headspring Project	Uranium One	Russia	NA	Exploration	Headspring investments a subsidiary of Russian Uranium One. Exploration license 2016

Source: author

A key investor: China

Despite the gloomy uranium market since the Fukushima accident, the Namibian uranium industry has been growing. This contradiction could be explained by the inflow of Chinese investments that made it possible to establish the Husab mine and for Rössing and Langer Heinrich to continue production. Rössing Mine faced the threat of early closure⁴⁸ due to declining ore reserves and the loss of its biggest buyer in Japan since the Fukushima disaster. Due to the low commodity prices and the depressed outlook for the uranium market at the time, Trekkopje and Langer Heinrich mines were placed on care and maintenance in 2012 and 2018, respectively. Also, spending on exploration and mine development dropped from 10 million US\$ in 2015 to 3.7 million US\$ in 2018⁴⁹.

Namibia's uranium sector is now largely owned and controlled by Chinese state-owned companies, and it represents China's largest investment in Namibia. Proud of China's investments, president Hage Geingob took two of his African counterparts to visit the Husab mine: Zambian President Edgar Lungu in August 2015⁵⁰ and Malian president Ibrahim Boubacar Keita in March 2016⁵¹.

China's acquisition of Namibia's uranium mining assets started in 2012 when Taurus Minerals Limited of Hong Kong acquired a stake of 90 % in Swakop Uranium, the operator of Husab Mine⁵². Husab uranium mine is China's biggest Namibian investment, costing 4.6 billion US\$, and is among the largest single mining investment of the Chinese government in Africa⁵³. It is an important investment for China Guangdong Nuclear Power

⁴⁸ The Rössing uranium mine, was expected to close down in 2007, the mine's management announced on 2003.

⁴⁹ Uranium 2020: Resources, Production and Demand. A joint Report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency, OECD 2020.

⁵⁰ "Husab could contribute up to N\$1.7 billion yearly to state revenue", The New Era, 31 august 2015.

⁵¹ "Geingob commends Husab mine for creating jobs", The Namibian, 20 March 2016.

⁵² Swakop Uranium was earlier owned by Extract Resources, which was acquired by Taurus in January 2012. Taurus Minerals is a subsidiary of China Guangdong Nuclear Power (60% owned by China CGN-Uranium Resources and 40% by China-Africa Development Fund).

⁵³ "Chinese company to construct huge uranium mine in Namibia", Mining.com, 20 April 2013.

Corporation (CGNPC), providing about 70 % of its total supply of foreign uranium⁵⁴.

In 2014, China Uranium Corporation, a subsidiary of China National Nuclear Corporation, then bought 25 % of the stakes in the Langer Heinrich uranium mine from Australia's Paladin Energy⁵⁵. An additional acquisition of 69 % of the Rössing mine⁵⁶ by China National Uranium Corporation Limited (CNUC) placed China in control of the Namibian uranium mining sector.

Zhonghe Resources is another Chinese company active in Namibia, 58 % of which is owned by the China Uranium Corporation, 21 % by Namibia-China Mineral Resources Investment, and 21 % by Springbok investment. The latter two companies are private Chinese companies. Zhonghe resources acquired its exploration license in 2007. It was not clear how the mining license was obtained, and not much information is available on the company.

In 2010 it was reported that Marenica Energy Ltd had acquired funding from China's Hanlong Energy Limited to expand the feasibility studies of its Namibian uranium project⁵⁷. In the last three years, China became the largest consumer of Namibia' uranium, surpassing France, Canada and the United States. In 2020, 80% of Namibia uranium exports went to China, 12 % to Canada and 3 % to France⁵⁸.

⁵⁴ Meredith J. Deboom, *Developmental Fusion: Chinese Investment, Resource Nationalism, and the Distributive Politics of Uranium Mining in Namibia*, University of Colorado, 2018.

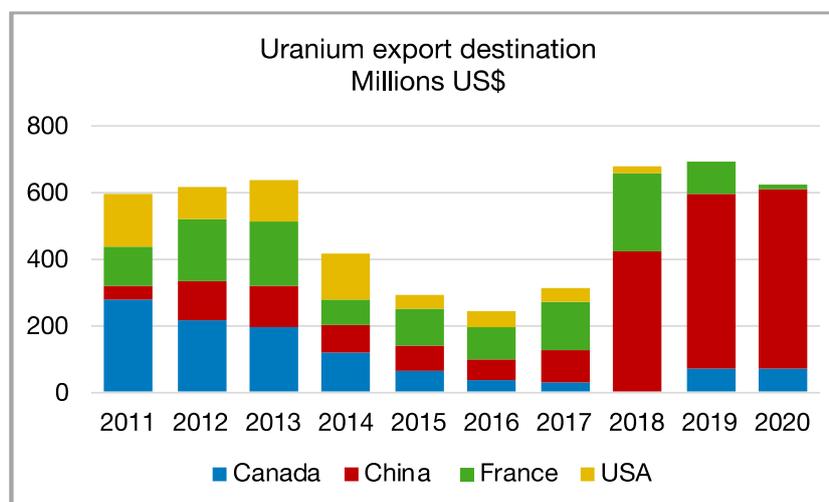
⁵⁵ "China's leading nuclear utility buys 25% stake in Paladin's Namibia uranium mine", *Mining.com*, 21 January 2014.

⁵⁶ Rössing was owned by multinational Rio Tinto which is exiting the uranium market entirely following its sale of Rössing Uranium.

⁵⁷ <https://www.wise-uranium.org/upna.html>

⁵⁸ Data source: TrendEconomy.com

Figure 6 : Imports of Namibia's uranium 2011-2020



Data source: UN Comtrade

Uranium is the most strategic economic driver of China's interest in Namibia as China is expanding its nuclear energy capacity. The development of nuclear energy is part of China's policy of "Ecological civilization" introduced in 2007 and included in the constitution in 2012. China's uranium imports from Namibia more than doubled between 2011 and 2020 as shown in Figure 6. The number of nuclear reactors in China increased from 3 in 2004 to 47 in 2020⁵⁹. Investing in Namibia goes along with China's strategy of the "Three Thirds" rule: one-third of its uranium comes from domestic supply, one-third from direct international trade, and another third from overseas mining by Chinese firms. China's uranium investments may not only serve China's energy security, but could also serve other geostrategic purposes pertaining to expanding its influence through government-led nuclear business. China is seeking to develop its nuclear commerce as a provider of nuclear technology, nuclear plants and nuclear engineering. For example China and Saudi Arabia have several joint nuclear projects⁶⁰. Also China has built a nuclear plant in Pakistan which will be operated by the state-owned China National Nuclear Corporation (CNNC)⁶¹. The Chinese government is expanding its alliances through the vital sector of nuclear energy⁶².

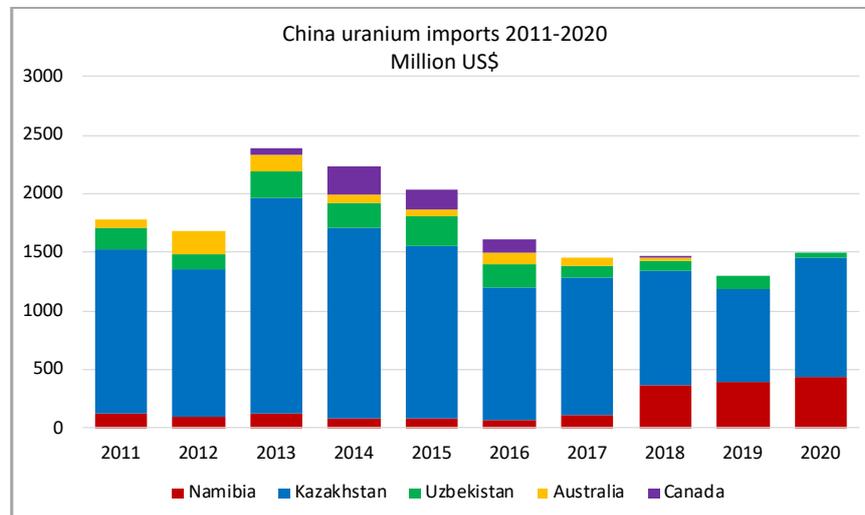
⁵⁹ The International Atomic Energy Agency, China Country Nuclear Power Profiles.

⁶⁰ "Saudi Arabia, With China's Help, Expands Its Nuclear Program", The Wall Street Journal, 4 August 2020.

⁶¹ "What China's rapidly expanding nuclear industry means for the West", NikkeiAsia, 9 May 2021.

⁶² Mark Hibbs, "The Future of Nuclear Power in China: Introduction", Carnegie Endowment for International Peace, 14 May 2018.

Figure 7 : China uranium imports 2011-2020



Data source: UN Comtrade

While China's state-owned companies dominate the operational mines, Australian companies lead the exploration projects. In addition, Russia is also present in the exploration business but not much is currently known about the Russian Headspring Investments (a subsidiary of Rosatom's mining arm ARMZ Uranium Holding Co) which holds eight uranium exploration permits, and applied for 19 additional licenses in 2019⁶³.

⁶³ "Rosatom locks in more uranium assets", African Intelligence, 1st October 2019.

The challenges of the uranium sector

The Namibia uranium mining sector is surrounded by problems concerning the distribution and transparency of the mining rent, health and safety, environmental impacts, labor disputes, legislative controls and non-proliferation issue.

Distribution and transparency of the mining rent

The economic impact of uranium mining is questionable. Chinese uranium investments have been accompanied by infrastructure developments, such as the so-called “uranium railway”. The rehabilitation of this railway from Walvis Bay to Kranzberg was awarded to two Chinese companies. Additionally, China built a container terminal in Walvis Bay as part of China’s Belt and Road Initiative to accommodate, among others, future exports from Husab. However, who is benefiting from the mining investments in Namibia ? Definitely not the average Namibian citizen, as suggested by the country’s economic and social performance. Namibia ranks 130 out of 189 on the UN Human Development indicator (HDI), unemployment affects a third (33.4 %) of its population⁶⁴ and 38 % of the population live in multidimensional poverty⁶⁵. Uranium mining tends to perform as enclave economy that benefits do not stretch to the wider Namibian economy.

Firstly, although uranium mining is one of the most important economic sectors in Namibia, it creates relatively few jobs. Direct employment in the mining sector represents 1.7 % of total employment in 2018⁶⁶. In 2018 the uranium mining companies retrenched many permanent, temporary and contract workers, in particular at the Langer Heinrich Uranium mine.

Secondly, the distribution of the mining rent is captured by the SWAPO elite both through the Epangelo company and the BEE⁶⁷ policy. According to Meredith DeBoom, Chinese uranium investments have influenced Namibia's shift toward a

⁶⁴ « The Root Causes of Unemployment and Possible Policy Interventions », National Planning Commission, March 2020.

⁶⁵ UN Human Development Reports, Namibia, 2020. Multidimensional poverty is estimated on the basis of three dimensions: monetary, education, and basic infrastructure access.

⁶⁶ “Namibia Labour Force Survey 2018 Report”, Namibia Statistics Agency, 2019.

⁶⁷ Black Economic Empowerment. See below.

state-led mining sector. “Husab's hybrid ownership structure has catalysed Epangelo's growth from a 200,000 USD start-up to a major player in Namibia's mining sector. Drawing on the example of China, Namibian officials have identified increased state ownership in the mining sector through Epangelo as the crucial link between mining and broad-based development for the Namibian people”⁶⁸. But the “win-win partnership” between Chinese companies and Epangelo is seen by many Namibians as merely benefiting the SWAPO elite, with growing concerns related to corruption and inequality. In 2019 the Windhoek Observer reported that SWAPO promised China four uranium exclusive prospecting licenses and a farm in exchange for the construction of its party headquarters estimated to cost about 50 million US\$. The construction tender was awarded to a Chinese firm Unik Construction Engineering⁶⁹. Another example of lack of transparency is the way in which Zhonghe Resources acquired its mining license and Orano obtained tax free mining status.

In addition, like the Black Economic Empowerment policy of the South African government, the Namibian BEE policy aiming to address the racial inequalities of apartheid and increase economic participation of black people in the economy is very controversial. It has been perceived as a vehicle for self-enrichment by those who are politically connected. Speaking in parliament, the Minister of Mines and Energy Isak Katali said in 2011: “Government is fully aware that black economic empowerment (BEE)⁷⁰ is abused by some to make 'phenomenal amounts' of money. Some BEE companies are 'fronting' a practice where foreign companies use local empowerment companies to clinch deals. We know of BEE licensees 'selling out' exploration licences as soon as they are granted to them”⁷¹. To avoid mining speculations and attract investors, in 2018 Namibia canceled some requirements for black ownership in the mining sector that had been stipulated in the Namibian Mining Charter 2014⁷². In 2021, the Minister of Mines and Energy announced that locals who own mineral exploration licenses will no longer be able to sell out to foreigners as some of them acquire exploration licenses just to resell and make a profit⁷³. Given these problems, some voice the need for an independent agency to guarantee transparency in the granting or rejection of mine permits and licences.

⁶⁸ Meredith J. DeBoom, “Nuclear (Geo)Political Ecologies: A Hybrid Geography of Chinese Investment in Namibia's Uranium Sector”, *Journal of current Chinese affairs*, 2017.

⁶⁹ Wise uranium project webpage accessed in June 2021. <https://www.wise-uranium.org>

⁷⁰ A new empowerment bill “National Equitable Economic Empowerment Policy Framework (NEEEF)” is still debated.

⁷¹ “Government pockets all rights to mine uranium”, *The Namibian*, 21 April 2011.

⁷² Charter for Sustainable and Broad-Based Economic and Social Transformation in the Namibian Mining Sector 2014-2020, “The Namibian Mining Charter”, The Chamber of Mines of Namibia, 19 September 2014. Under this policy there must be a minimum 20 % representation of black Namibians in the management structure and at least 5 % of the company' ownership.

⁷³ “Namibia moves to curb mining speculators, boost local ownership”, *Reuters*, 3 March 2021.

Legislation inadequacy and non-proliferation issues

Although Namibia has 45 years of experience in the uranium mining, there are no policies or regulations that deal specifically with the whole uranium production or the nuclear fuel cycle, which demonstrates the need for more transparent management of the uranium industry. There is a need for updating laws and regulations as the uranium industry grows. The main policies regulating the uranium mining sector are: Minerals (Prospecting and Mining) Act of 1992, Minerals Policy of Namibia, 2002, Atomic Energy Act of 2005⁷⁴ and Environmental Management Act of 2007⁷⁵. In 2010, the Namibian government together with Finnish authorities (Finland's Radiation & Nuclear Safety Authority) started to develop uranium mining policies and regulations⁷⁶. They are still in draft form and nothing has been published so far. The Mineral act of 1992 does not deal with uranium mining as a special category, it also lacks regulations for health and safety of workers and the essential procedures of mine closure. Developed by the Chamber of Mines, the Namibian Mine Closure Framework (NMCF) provides guidance on how to develop mines closure plan but is not legally binding⁷⁷. However, to enforce these regulations there is need for properly trained personnel to carry out the necessary assessments, inspections and strictly-enforcement of regulatory standards.

Namibia is signatory to the Non-Proliferation Treaty since 1998 and has also ratified the African nuclear weapon Free Zone Treaty, the Pelindaba Treaty of 2009. In 2009 Namibia has signed an agreement on cooperation in the peaceful uses of nuclear energy with India which is not a member of the Non-Proliferation Treaty. Namibia denies that the agreement granted the supply of uranium to India. Suspicions were also looming around uranium sale to Iran and its 15 % shares at Rössing. However, in 2005 Rössing declared that Iran has no takeoff rights although representatives of the government of Iran attended the Rössing board of

⁷⁴ An Atomic Energy Board has been established along with a National Radiation Protection Authority.

⁷⁵ The Constitution of the Republic of Namibia, Namibia Vision 2030, Namibia's 5th National Development Plan, and The Harambee Prosperity Plan are basis for sustainable development.

⁷⁶ Nuclear Fuel Cycle Policy started with project consultations between the Ministry of Mines and Energy, the Ministry of Health and Social Services, the Ministry of Justice, the Geological Survey of Finland (GTK), and the Radiation and Nuclear Safety Authority of Finland (STUK) in November 2010. During the year under review, the draft Nuclear Fuel Policy document was submitted to the Ministry of Justice for review.

⁷⁷ Produced by the Chamber of Mines in 2010 for the members of the Chamber of Mines of Namibia (CoM) bound by the Chamber's Code of Conduct and Ethics (COC).

directors' meetings⁷⁸. In addition, as mentioned in a previous report⁷⁹, the discreet and long-term relationships between Namibia and North Korea also raises nuclear worries. However, Namibia has always declared that its position on uranium supply is guided by international agreements.

Environmental concerns and health hazards

Uranium mining in Namibia is mostly done in the Erongo Region within the Namib Naukluft National Park, a sensitive natural environment where the rate of ecological recovery is slow⁸⁰. The mining industry is an important water consumer in a desert country. As a result, water shortage is of concern, for example NamWater was unable to supply Husab with sufficient water in February and March 2018.

Although some companies have developed environmental programs, uranium mining still has potential impacts on the environment, for example on the loss of biodiversity and human health as a result of water contamination and radiation⁸¹. Namibia's open-pit mining of uranium entails the removal of vast quantities of soil and rock, some of which emit radon. This is a radioactive gas which can be dispersed in air and water. Analyses of samples of soil, sediments and water in the vicinity of the Rössing mine found radon and significant contamination by various chemicals downstream of the mine's dumps. High concentrations of uranium have also been detected in underground water downstream of the Rössing mine in the Khan River and Swakop rivers. By contrast, concentrations of uranium are lower upstream of the two rivers⁸². In principle, the health and safety of mineworkers and the public is protected by regulations of the Labour Act, the Atomic Energy and Radiation Protection Act and the Workers Compensation Act (WCA). The Namibia Uranium Institute opened in 2009, aims to further improve health, environment and radiation safety in the industry. As the industry has developed very modern production processes, the working conditions have improved. However, in February 2019 Swakop miners, led by the Mineworkers Union of Namibia, held a peaceful demonstration and

⁷⁸ "Iran has stake in Rössing Namibian uranium link fuels nuclear arms issue", *The Namibian*, 31 January 2005.

⁷⁹ Selma el Obeid and John Mendelsohn, *Namibia's fair-weather friends and one all-weather friend*, IFRI note n°19, 2021.

⁸⁰ Strategic Environmental Assessment (SEA) for the so-called 'central Namib "Uranium Rush"' was undertaken in 2009. <https://www.namibianuranium.org>

⁸¹ Documentary on Namibia's Uranium Rush. <https://www.youtube.com>

⁸² Bruno Chareyron, "Radiological Impact of Rössing Rio Tinto Uranium Mine", EJOLT & CRIIRAD Report, April 2014.

handed over a petition over health and safety issues claiming that unchecked explosives and detonators had been discovered at the mine's site⁸³.

Labor disputes

Other challenges in the uranium sector could emerge due to differences in the management style that faces both the mineworkers and the Chinese investors. The strong Mineworkers Union of Namibia (MUN) which was born in 1978 at the Rössing mine, is on the alert about the Chinese domination of the uranium sector. MUN Acting President Allen Kalumbu said “the sale of Rössing will make 90 % of the country’s uranium, to be owned by Chinese state-owned companies. The union fear that this will be a direct monopoly which might have a negative impact in the near future”⁸⁴. In 2019, CNNA has terminated the contracts of nine labor leaders accusing them of leaking confidential information. According to the nine workers, they have been sacked because they refused to accept compromises. The MUN accuses the new management of changing the established agreements by less favorable ones, in particular concerning the salary scales and structures⁸⁵.

⁸³ “Safety fears threaten Husab mine operations”, The Economist Intelligence Unit, 5 March 2019.

⁸⁴ MUN worried by the sale of Rössing”, NBC, 7 February 2019.

⁸⁵ “Support the ‘Rossing Nine’ in Namibia”, unitedleft.org.uk accessed in July 2021.

Conclusion

Viewed by the government as a vehicle for economic development, the Namibian uranium industry will likely continue to grow. The large number of prospecting licenses granted by the government will enhance exploration activity and improve the prospects of more uranium mines being established active. The growing value of the uranium sector will probably follow the expected rise in global energy. More countries are likely to incorporate nuclear power into the mix of their power generation capabilities to meet the projected rise in global consumption of 41% between 2012 and 2035.

But uranium revenue is neither managed nor distributed transparently. A major cause of frustration among Namibians is the country's dire economic performance and the perception of the uranium rent being captured by foreign investors and the SWAPO elite. In this respect, a proposed empowerment bill "National Equitable Economic Empowerment Policy Framework (NEEEF)" is perceived by many as another way to benefit well-connected wealthy elites⁸⁶. The government's policy of boosting the economy and Namibia's wellbeing by declaring uranium and other minerals as strategic has yet to prove fruitful. Namibia's abundance of mineral resources has not contributed enough to economic development and the reduction of poverty and social inequality.

China's influence in Namibia and its extraction of resources will persist, and probably increase. However, this trend may be restrained by Namibia's relatively functional democracy, strong investigative journalism and free press, and its healthy parliamentary debates. Namibia ranked first as the country with the « freest press in Africa » by Reporters without Borders in 2020 and, during the parliamentary debates, China's investments and presence have often been questioned.

⁸⁶ "Those against Neeef are insensitive – PM", The Namibian, 25 September 2020.