www.theextractormagazine.com

NUCLEAR ENERGY EDITION

The Extractor

Mining, Energy, Construction and Logistics

VOLUME 05 | Edition 30

MONDAY, 23 NOVEMBER 2026

Namibia outlines US$56m nuclear program prep

Rosatom has identified Namibia among four African countries engaged in substantive discussions over floating nuclear power stations, although no agreement has been announced. Each proposed unit would generate approximately 100MW using two RITM-200M reactors.



INSIDE

- Namibia studies Chinese nuclear technology
- 10,447 tonnes of uranium fuel nuclear ambitions
- 2030 nuclear target faces 2045 technical assessment
- Russia seeks wider role in nuclear energy plans
- 100 MW floating nuclear power plant under spotlight

ALFRED H KNIGHT

BRINGING GEOCHEMICAL ANALYSIS CLOSER TO YOUR OPERATION

Alfred H Knight provides geochemistry services for exploration, mining, and mineral processing across Africa, bringing reliable analytical capability closer to clients' operations.

Critical and battery Minerals

Lithium, Copper, and Cobalt Analysis

Specialised analysis supporting lithium, copper, and cobalt projects across the Copperbelt and beyond.

Precious Metals

Gold Analysis by Fire Assay

Fire Assay with AAS finish for gold exploration and production, with platinum and palladium capability in development.

Multi-Element Analysis

ICP-OES Analysis

Four-acid digestion and multi-element analysis supporting exploration, grade control, and mineral processing.

Why choose Alfred H Knight?

- **Over 145 years** of independent testing and inspection expertise
- Regional laboratory network across Africa and the Middle East
- **ISO/IEC 17025:2017** - compliant quality systems and rigorous QC
- Responsive turnaround to support operational requirements
- Reliable, traceable data for reporting and informed decision-making

Contact our local geochemistry team to discuss your analytical requirements.

Khulile Njizane
Business Development Manager - Geochemistry

Khulile.njizane@ahkgroup.com
+27 76 251 2794

INSPECT | TEST | TRUST

Inside

Vol. 5 | Edition 30

COVER STORY

P.01 Namibia outlines US$56m nuclear preparations

NUCLEAR ENERGY

P.05 The 100 MW floating nuclear power plant

NUCLEAR ENERGY

P.07 Russia seeks wider role in Namibia's nuclear energy plans

NUCLEAR ENERGY

P.11 2030 nuclear power target faces 2045 technical assessment

NUCLEAR ENERGY

P.15 Alfred H Knight introduces mobile mineral sample preparation units across Africa

NUCLEAR ENERGY

P.19 Namibia studies Chinese nuclear technology ahead of power plans

© 2026 The Extractor Magazine. All rights reserved. Reproduction, republication, automated extraction, syndication or commercial aggregation of this article, in whole or in part, is expressly prohibited without prior written permission.

Ad

SciAps
Scientific Applications



PORTABLE ANALYTICAL EQUIPMENT *FOR EVERY INDUSTRY*

Mining – Oil & Gas – Exploration – Alloy – Precious Metals

Accurate & Fast | Portable & Field-Ready | Broad Applications
Expert Support & Calibration | Local Presence & Service in Africa

ASD Inc. A SciAps Company

NEW



Contact SciAps – Scientific Applications in Africa today
for expert guidance, demos and service solutions tailored to your industry needs.

Sales: (+27) 60 975 6390 | Email: pdupreez@sciaps.com

WWW.SCIAPS.CO.ZA

COVER STORY

Namibia outlines US$56m nuclear preparations

Namibia has outlined a US$56 million programme to prepare for nuclear electricity generation, with government planning documents identifying expenditure on feasibility studies, regulatory institutions, site selection and technical training ahead of possible reactor construction around 2035.

The proposed expenditure is detailed in Namibia's Third Nationally Determined Contribution (NDC 3.0), published in October 2026, which identifies five areas of investment required to establish the foundations of a domestic nuclear power industry.

The US$56 million is classified as a conditional financing requirement rather than money already secured or appropriated through the national budget.

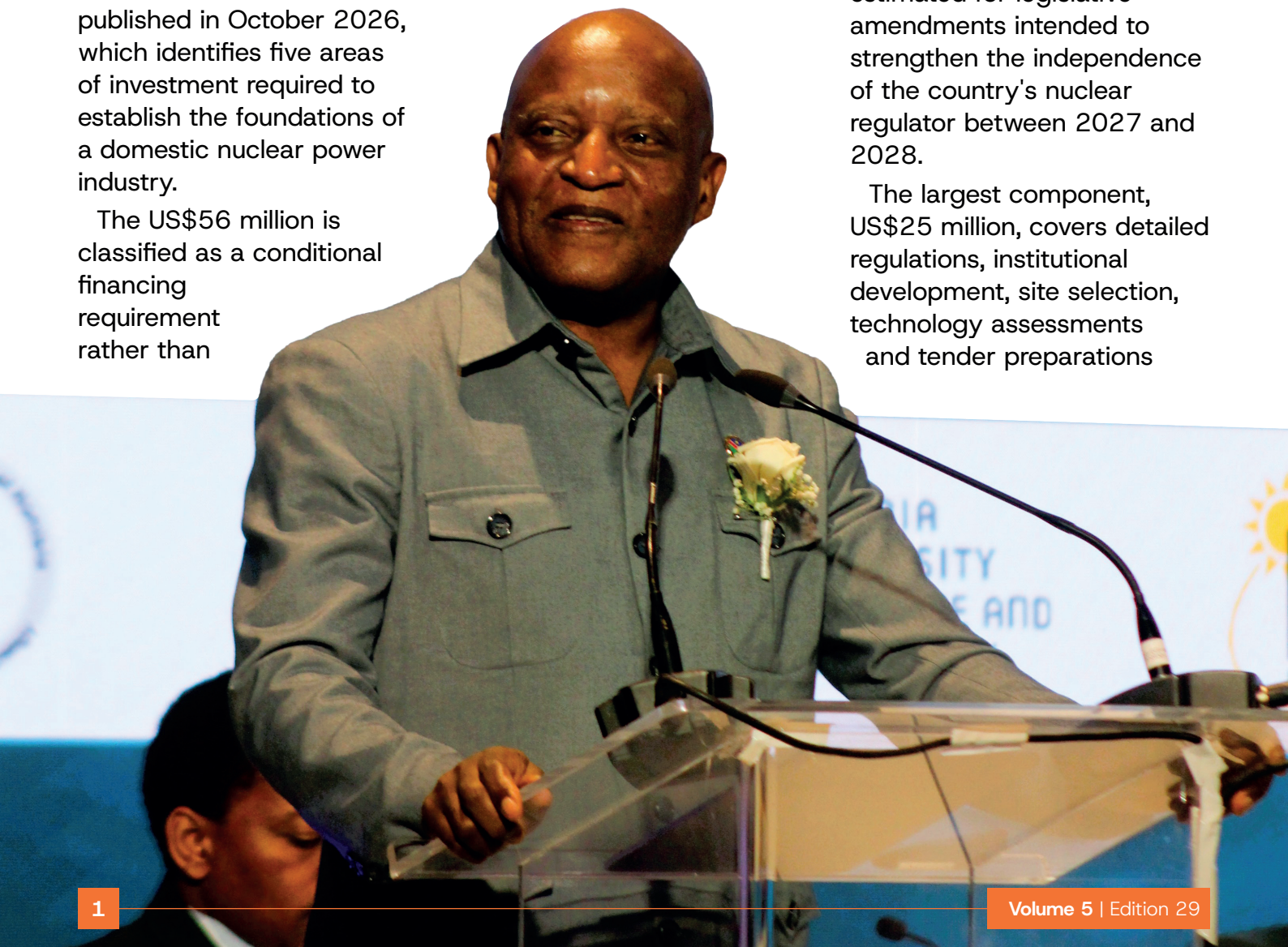
The financial commitments have gained significance following President Netumbo Nandi-Ndaitwah's announcement on 19 November that Namibia had commissioned a nuclear power development roadmap.

The announcement, delivered by Prime Minister Elijah Ngurare at the Third National Nuclear Science and Technology Conference in Swakopmund, comes as government documents provide details of the expenditure and institutional preparations envisaged over the next decade.

The NDC 3.0 identifies US$5 million for establishing a national position on nuclear electricity, conducting initial feasibility studies, developing legal frameworks and designating a lead institution.

Another US$1 million is estimated for legislative amendments intended to strengthen the independence of the country's nuclear regulator between 2027 and 2028.

The largest component, US$25 million, covers detailed regulations, institutional development, site selection, technology assessments and tender preparations



between 2027 and 2030.

Technical training and international partnerships account for another US$10 million, while US$15 million is identified for contracting, construction permits, regulatory oversight, workforce preparation and infrastructure implementation between 2030 and 2035.

Although the overall programme is classified as conditional, the legislative component is separately listed as unconditional.

Construction preparations

The NDC 3.0 identifies the period between 2030 and 2035 for completing contracting arrangements, obtaining construction permits and preparing for the commencement of construction.

The 2035 construction milestone is an extrapolated target, not an approved project schedule. It does not establish when Namibia's first nuclear power station would begin generating electricity.

The timetable also differs from the Ministry of Industries, Mines and Energy's strategic objective of establishing a small modular nuclear power plant by 2030.



However, the NDC 3.0 concentrates on the preparatory work required to establish a nuclear electricity programme, including regulatory development, site assessment and the training of specialised personnel.

It does not identify a preferred reactor technology, construction site or developer.

Separate N$54 million programme

The Sixth National Development Plan's Implementation, Monitoring and Evaluation Plan identifies a separate N$54 million expenditure estimate for nuclear power infrastructure readiness between 2025/26 and 2029/30.

The amount comprises N$18 million in operating costs and N$36 million in development costs, with the Ministry of Industries, Mines and Energy responsible for implementation.

The plan schedules N$1.5 million in 2025/26, N$3.5 million in 2026/27, N$9 million in 2027/28 and N$20 million annually over the following two financial years.

These amounts represent planned expenditure rather than confirmed spending.

The N$54 million estimate and the US$56 million programme have different planning periods and scopes. Government has not publicly explained whether the activities covered by the two estimates overlap.

The development plan also sets out a sequence of documents expected to guide the nuclear programme.

A White Paper on Nuclear Power Generation is scheduled for 2025/26, followed by a high-level roadmap and pre-feasibility study in 2026/27.

A detailed feasibility study is scheduled for 2028/29, while a nuclear power policy and national programme documents are expected in 2029/30.

These milestones indicate that much of the government's immediate work concerns assessing the viability of nuclear electricity generation and establishing the institutions required to support it.

Questions over roadmap

The status of Namibia's nuclear power roadmap remains unclear following different government statements about its development.

During his April 2026 budget motivation, industries, mines and energy minister Modestus Amutse was reported as saying that a high-level nuclear programme implementation roadmap had already been developed and finalised.

However, President Nandi-Ndaitwah's November announcement referred to a roadmap commissioned for the national nuclear power programme.

It remains unclear whether the two statements concern the same document, an updated version or separate planning exercises.

The complete roadmap, its implementation budget and detailed recommendations could not be located among the publicly available documents examined.

The government has established the Nuclear Energy Programme Implementing Organisation (NEPIO) to coordinate preparations for introducing nuclear electricity generation.

John Titus, appointed Nuclear Commissioner in October 2026, heads the organisation's secretariat and coordinates technical assessments and institutional preparations.

In an October interview, Titus said the immediate priority was to develop the institutional capacity and evidence needed to inform government decisions.

The programme follows the International Atomic Energy Agency's Milestones Approach, which requires countries considering nuclear electricity generation to assess 19 infrastructure issues, including financing, nuclear safety, legislation, environmental protection, radioactive waste management and technical skills.

The process is intended to establish whether Namibia has the necessary regulatory, financial and technical capacity to proceed with nuclear electricity generation.

Financing remains unresolved

The government's preparatory estimates do not include the full capital expenditure required to construct a commercial nuclear power station.

NamPower chief operating officer Ben Mingeli told the Namibia International Energy Conference in April that the capital expenditure associated with a small modular reactor could reach US$1 billion.

That amount concerns the potential construction cost of a reactor, rather than the US$56 million identified for preparatory activities.

The distinction is significant because financing the institutional and regulatory groundwork would not necessarily provide the capital needed to construct a power station.

The government would still have to determine the preferred technology, assess electricity demand, identify a suitable location and establish the commercial arrangements under which nuclear electricity could be supplied.

At the Swakopmund conference on 19 November, President Nandi-Ndaitwah reiterated Namibia's intention to develop nuclear electricity generation alongside uranium conversion and other nuclear technologies.

She identified nuclear power as a potential source of electricity for desalination, green hydrogen production and industrial manufacturing.

NUCLEAR ENERGY







The 100 MW floating nuclear power plant

Russia's state nuclear corporation Rosatom is marketing 100-megawatt floating nuclear power stations to African countries, including Namibia, where it has confirmed discussions about potential projects involving reactors installed aboard specially designed vessels rather than conventional nuclear power stations on land.

The technology involves constructing a nuclear generating facility at a shipyard, towing it to a prepared coastal location and connecting it to electricity transmission infrastructure.

Rosatom director-general Alexei Likhachev identified Namibia, Egypt, Tanzania and Togo as countries involved in substantive discussions in October 2026, although no agreement to install a floating nuclear power station in Namibia has been announced.

The proposed export units would each generate approximately 100MW using two RITM-200M reactors. Rosatom is promoting an arrangement under which customers purchase electricity while the Russian corporation manages operations, maintenance and nuclear fuel.

Unlike nuclear-powered ships, floating nuclear power stations remain moored at designated locations and generate electricity for consumers on land.

Two reactors on one vessel

According to Rosatom's technical presentation at an International Atomic Energy Agency-hosted forum in May 2025, its proposed FPU-100 would measure approximately 120 metres long and 32.4 metres wide, with a draught of seven metres and a displacement of 21,560 tonnes.

The design provides for approximately 128 personnel and incorporates two pressurised-water reactors, each capable of generating 50MW of electricity.

The IAEA's 2024 small modular reactor catalogue lists each RITM-200M reactor's thermal capacity at 198MW and electrical capacity at 50MW. These specifications were supplied by the developer and do not

constitute independent IAEA certification.

The reactors use enriched uranium fuel to generate heat through controlled nuclear fission. This heat produces steam that drives turbines connected to electricity generators.

The RITM-200M design is derived from technology developed for Russia's nuclear-powered icebreakers, although the floating station would be designed for stationary electricity generation.

Rosatom says the reactors incorporate active and passive safety systems intended to maintain cooling and contain radioactive materials during specified accidents. These systems would require independent assessment before any installation could be authorised in Namibia.

The proposed floating station would be assembled at a specialised shipyard and towed to its operating location because it would not have its own propulsion system.

Once secured at a prepared coastal site, the facility would connect to electricity infrastructure supplying the national grid or designated industrial consumers.

Rosatom's May 2025 presentation describes a commercial model under which the corporation provides electricity generation services while retaining responsibility for operations, maintenance, nuclear fuel management and eventual decommissioning.

The arrangement could involve a long-term take-or-pay contract requiring customers to pay for an agreed volume of electricity.

These are proposed commercial terms, not arrangements agreed with Namibia.

Potential Namibian consumers could include uranium mines, coastal industries and desalination facilities. However, no site has been selected, and no publicly available feasibility assessment has established whether a particular coastal location would be suitable.

Site selection would require consideration of water depth, seabed conditions, currents, waves, marine traffic, transmission capacity and emergency response arrangements.

Refuelling intervals of up to ten years

The RITM-200M design specifies a refuelling interval of up to 120 months, equivalent to ten years,

according to the IAEA's technical catalogue.

Under Rosatom's proposed arrangement, the floating unit would arrive with fresh nuclear fuel already installed. When major servicing or refuelling became necessary, it would return to a specialised Russian facility.

Nuclear fuel replacement and spent fuel management would therefore take place in Russia rather than at the host country's coastal site.

Bellona nuclear expert Dmitry Gorchakov explained the arrangement in an assessment published on 9 November 2026.

"Rosatom's idea is to tow the floating units back to a specialized base in Russia rather than build such infrastructure abroad and burden the customer with additional infrastructure that they do not really need," Gorchakov said.

The model could reduce the need for Namibia to construct specialised nuclear fuel-handling facilities, but it would also create dependence on Rosatom for essential technical services.

Any electricity purchase agreement would need to establish how supply would be maintained when a generating unit was removed for servicing.

Russia's operating example

Russia already operates the Akademik Lomonosov floating nuclear power station at Pevek in the Chukotka region.

The facility began supplying electricity in 2019 and entered commercial operation in 2020. It uses two KLT-40S reactors with a combined generating capacity of approximately 70MW.

The station demonstrates that floating nuclear electricity generation is commercially possible, although its older reactor technology differs from the proposed RITM-200M export design.

Construction began in 2007, approximately 13 years before commercial operation.

Bellona has cited the lengthy development period and cost increases when questioning claims that floating nuclear power stations can be delivered quickly and economically.

The newer export reactors are intended for warmer climates, but their commercial performance outside Russia has not yet been demonstrated.

Electricity for 263,000 households

A 100MW floating nuclear power station could theoretically generate 876 million kilowatt-hours annually if operated continuously at full capacity.

At an assumed operating capacity factor of 90%, annual production would be approximately 788 million kilowatt-hours, enough to meet the electricity consumption of about

263,000 households using an illustrative average of 250 kilowatt-hours per month.

This is a mathematical estimate rather than an official Namibian household electricity demand assessment.

Actual household coverage would depend on electricity consumed by the facility itself, transmission losses, maintenance requirements and the amount allocated to industrial consumers.

At 200 kilowatt-hours per household monthly, the same generation would theoretically supply approximately 328,500 households. At 400 kilowatt-hours, the equivalent would fall to about 164,250 households.

The financial attractiveness of the technology would depend on the electricity tariff and contractual arrangements.

Rosatom has not publicly disclosed a proposed tariff, financing structure or contract duration for Namibia, making comparisons with other electricity generation options premature.

Safety risks at sea

Floating nuclear power stations face additional safety considerations because their reactors operate within a maritime environment.

Potential hazards include vessel collisions, extreme weather, flooding, hull damage and failures affecting mooring systems.

Bellona nuclear expert Alexander Nikitin warned in November that floating installations could face additional risks compared with conventional nuclear power stations.

"Floating nuclear power plants are no less dangerous than stationary ones, and possibly even more dangerous, because several new factors affecting their safety are added to those associated with land-based nuclear power plants," Nikitin said.

He identified storms, collisions, hull damage and underwater security threats among the issues requiring attention.

The concerns do not establish that Rosatom's proposed design is unsafe, but they highlight the importance of independent assessments.

The World Nuclear Association has also examined regulatory challenges arising where international maritime requirements overlap with national nuclear safety legislation.

A host country would need clear arrangements covering nuclear liability, radiation protection, maritime security, emergency response and the transport of nuclear materials.

Rosatom's responsibility for operating a facility would not remove Namibia's obligation to ensure compliance with applicable safety and environmental requirements







Russia seeks wider role in Namibia's nuclear energy plans

Russia's state nuclear corporation Rosatom is marketing 100-megawatt floating nuclear power stations to African countries, including Namibia, where it has confirmed discussions about potential projects involving reactors installed aboard specially designed vessels rather than conventional nuclear power stations on land.

The technology involves constructing a nuclear generating facility at a shipyard, towing it to a prepared coastal location and connecting it to electricity transmission infrastructure.

Rosatom director-general Alexei Likhachev identified Namibia, Egypt, Tanzania and Togo as countries involved in substantive discussions in October 2026, although no agreement to install a floating nuclear power station in Namibia has been announced.

The proposed export units would each generate approximately 100MW using two RITM-200M reactors. Rosatom is promoting an arrangement under which customers purchase electricity while the Russian corporation manages operations, maintenance and nuclear fuel.

Unlike nuclear-powered ships, floating nuclear power stations remain moored at designated locations and generate electricity for consumers on land.

Two reactors on one vessel

According to Rosatom's technical presentation at an International Atomic Energy Agency-hosted forum in May 2025, its proposed FPU-100 would measure approximately 120 metres long and 32.4 metres wide, with a draught of seven metres and a displacement of 21,560 tonnes.

The design provides for approximately 128 personnel and incorporates two pressurised-water reactors, each capable of generating 50MW of electricity.

The IAEA's 2024 small modular reactor catalogue lists each RITM-200M reactor's thermal capacity at 198MW and electrical capacity at 50MW. These

specifications were supplied by the developer and do not constitute independent IAEA certification.

The reactors use enriched uranium fuel to generate heat through controlled nuclear fission. This heat produces steam that drives turbines connected to electricity generators.

The RITM-200M design is derived from technology developed for Russia's nuclear-powered icebreakers, although the floating station would be designed for stationary electricity generation.

Rosatom says the reactors incorporate active and passive safety systems intended to maintain cooling and contain radioactive materials during specified accidents. These systems would require independent assessment before any installation could be authorised in Namibia.

The proposed floating station would be assembled at a specialised shipyard and towed to its operating location because it would not have its own propulsion system.

Once secured at a prepared coastal site, the facility would connect to electricity infrastructure supplying the national grid or designated industrial consumers.

Rosatom's May 2025 presentation describes a commercial model under which the corporation provides electricity generation services while retaining responsibility for operations, maintenance, nuclear fuel management and eventual decommissioning.

The arrangement could involve a long-term take-or-pay contract requiring customers to pay for an agreed volume of electricity.

These are proposed commercial terms, not arrangements agreed with Namibia.

Potential Namibian consumers could include uranium mines, coastal industries and desalination facilities. However, no site has been selected, and no publicly available feasibility assessment has established whether a particular coastal location would be suitable.

Site selection would require consideration of water depth, seabed conditions, currents, waves, marine traffic, transmission capacity and emergency response arrangements.

Refuelling intervals of up to ten years

The RITM-200M design specifies a refuelling interval of up to 120 months, equivalent to ten years, according to the IAEA's technical catalogue.

Under Rosatom's proposed arrangement, the floating unit would arrive with fresh nuclear fuel already installed. When major servicing or refuelling became necessary, it would return to a specialised Russian facility.

Nuclear fuel replacement and spent fuel management would therefore take place in

Russia rather than at the host country's coastal site.

Bellona nuclear expert Dmitry Gorchakov explained the arrangement in an assessment published on 9 November 2026.

"Rosatom's idea is to tow the floating units back to a specialized base in Russia rather than build such infrastructure abroad and burden the customer with additional infrastructure that they do not really need," Gorchakov said.

The model could reduce the need for Namibia to construct specialised nuclear fuel-handling facilities, but it would also create dependence on Rosatom for essential technical services.

Any electricity purchase agreement would need to establish how supply would be maintained when a generating unit was removed for servicing.

Russia's operating example

Russia already operates the Akademik Lomonosov floating nuclear power station at Pevek in the Chukotka region.

The facility began supplying electricity in 2019 and entered commercial operation in 2020. It uses two KLT-40S reactors with a combined generating capacity of approximately 70MW.

The station demonstrates that floating nuclear electricity generation is commercially possible, although its older reactor technology differs from the proposed RITM-200M export design.

Construction began in 2007, approximately 13 years before commercial operation.

Bellona has cited the lengthy development period and cost increases when questioning claims that floating nuclear power stations can be delivered quickly and economically.

The newer export reactors are intended for warmer climates, but their commercial performance outside Russia has not yet been demonstrated.

Electricity for 263,000 households

A 100MW floating nuclear power station could theoretically generate 876 million kilowatt-hours annually if operated continuously at full capacity.

At an assumed operating capacity factor of 90%, annual production would be approximately 788 million kilowatt-hours, enough to meet the electricity consumption of about 263,000 households using an illustrative average of 250 kilowatt-hours per month.

This is a mathematical estimate rather than an official Namibian household

electricity demand assessment.

Actual household coverage would depend on electricity consumed by the facility itself, transmission losses, maintenance requirements and the amount allocated to industrial consumers.

At 200 kilowatt-hours per household monthly, the same generation would theoretically supply approximately 328,500 households. At 400 kilowatt-hours, the equivalent would fall to about 164,250 households.

The financial attractiveness of the technology would depend on the electricity tariff and contractual arrangements.

Rosatom has not publicly disclosed a proposed tariff, financing structure or contract duration for Namibia, making comparisons with other electricity generation options premature.

Safety risks at sea

Floating nuclear power stations face additional safety considerations because their reactors operate within a maritime environment.

Potential hazards include vessel collisions, extreme weather, flooding, hull damage and failures affecting mooring systems.

Bellona nuclear expert Alexander Nikitin warned in November that floating installations could face additional risks compared with conventional nuclear power stations.

"Floating nuclear power plants are no less dangerous than stationary ones, and possibly even more dangerous, because several new factors affecting their safety are added to those associated with land-based nuclear power plants," Nikitin said.

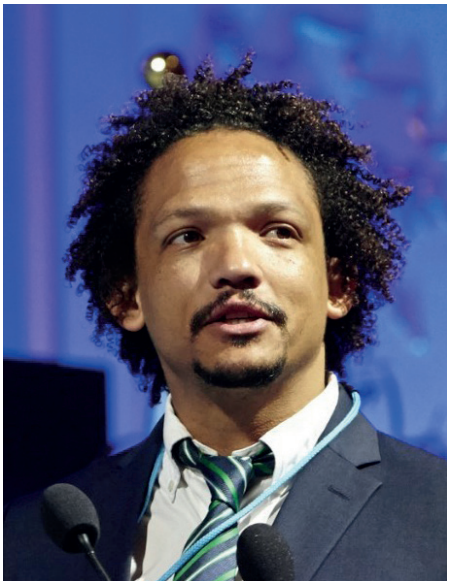
He identified storms, collisions, hull damage and underwater security threats among the issues requiring attention.

The concerns do not establish that Rosatom's proposed design is unsafe, but they highlight the importance of independent assessments.

The World Nuclear Association has also examined regulatory challenges arising where international maritime requirements overlap with national nuclear safety legislation.

A host country would need clear arrangements covering nuclear liability, radiation protection, maritime security, emergency response and the transport of nuclear materials.

Rosatom's responsibility for operating a facility would not remove Namibia's obligation to ensure compliance with applicable safety and environmental requirements







2030 nuclear power target faces 2045 technical assessment

Namibia's plan to establish a small modular nuclear power plant by 2030 contrasts with a government technical assessment that places the country's first operational nuclear power station in 2045.

The Ministry of Industries, Mines and Energy's 2025/26–2029/30 strategic plan sets a target of establishing one small modular nuclear power plant by 2030, despite an internal assessment indicating that Namibia could require considerably more time to develop the infrastructure, expertise and regulatory systems needed to generate nuclear electricity.

The ministry's chief geoscientist, Dr Nortin Titus, disclosed the longer timeline at the Namibia International Energy Conference in Windhoek in April 2026, saying government officials had examined the country's nuclear readiness during an internal workshop in 2025.

"In 2025, we had an integrated workshop on when possibly we could see a nuclear power plant," Titus said.

He explained that the assessment considered the preparations required before Namibia could develop and operate its first nuclear power station.

"And considering the preparatory work that we need to do, skills development and construction of a plant, a realistic value is 2045," he said.

The assessment places the likely commissioning of Namibia's first nuclear power station 15 years beyond the target contained in the ministry's strategic plan, although the government has not formally announced a revision to its 2030 objective.

The ministry's strategic plan identifies nuclear industry development as part of the government's economic diversification programme, with the sector's contribution to gross domestic product expected to increase from 3.2% to 4% by 2030.

The plan also provides

for the development of a regulatory framework and the implementation of projects involving uranium value addition, small modular reactors and nuclear electricity generation.

NamPower examines 120MW reactor

NamPower managing director Kahenge Haulofu confirmed in October that the national electricity utility was examining small modular reactor technology, including a possible 120-megawatt installation.

Haulofu said technical teams had visited nuclear facilities in China to assess available technologies and understand the requirements for introducing nuclear electricity generation in Namibia.

"A small modular reactor can be 120 megawatts. 120 megawatts is a big plant for our world. It will be a very, very good base load for our plant," he said.

However, Haulofu acknowledged that NamPower had not selected a reactor technology or established a dedicated nuclear power project.

"Up to now, there is no selection, no dedicated project yet. But it is on the horizon," he said.

His comments indicate that the utility remains at the technology assessment stage, despite the government's ambition to establish a reactor within the next four years.

Haulofu also identified legislation, environmental requirements and international approvals as matters that would have to be addressed before a nuclear project could proceed.

Namibia would additionally need arrangements for nuclear safety, radioactive waste management, emergency preparedness, technical training and the long-term operation of a reactor.

The absence of a confirmed construction site, selected technology, financing package and commissioning schedule leaves the practical implementation of the 2030 target uncertain.

Nuclear power could cost billions

The financial requirements of nuclear electricity generation present another challenge.

NamPower chief operating officer Ben Mingeli told the April energy conference that even a small modular reactor project would require substantial capital investment.

"The capital expenditure for that project is already a billion US dollars," he said.

Titus also cautioned that nuclear energy required considerable upfront investment, although he argued that it could provide greater stability in electricity generation costs.

"You get what you pay for. The upfront costs are very high," Titus said.

He nevertheless maintained that nuclear energy remained relevant to Namibia's long-term electricity requirements.

"With nuclear power, the amount of or the cost of uranium per pound does not influence the cost of electricity," he said.

The potential investment would have to be assessed against Namibia's electricity requirements, the cost of alternative generation technologies and the country's ability to finance and operate a nuclear power station.

The government's Sixth National Development Plan also identifies uranium conversion as a potential area of industrial investment, with up to N$20 billion envisaged under favourable conditions.

That figure relates to uranium processing rather than the construction of a nuclear power station and should not be treated as the

budget for a reactor.

Government establishes nuclear framework

Namibia's nuclear ambitions gained a formal policy foundation in September 2025 when Cabinet approved the country's first Nuclear Industry Strategy.

The strategy provides for uranium beneficiation, nuclear electricity generation, research reactors and other applications of nuclear technology.

It also envisages the establishment of a Nuclear Institute of Namibia and the development of a regulatory framework capable of supporting a domestic nuclear industry.

A draft Nuclear Bill underwent public consultation in 2026 as part of efforts to update the country's nuclear legislation.

In October, Prime Minister Elijah Ngurare appointed John Titus, a director in the ministry's Department of Energy, as Nuclear Commissioner.

John Titus, who is distinct from chief geoscientist Dr Nortin Titus, was tasked with coordinating the technical preparations for the nuclear programme.

A management committee comprising senior government officials was also established to oversee preparations covering nuclear safety, financing, environmental protection, waste management and human resource development.

These arrangements are intended to support Namibia's compliance with international nuclear infrastructure requirements.

However, establishing the regulatory and institutional framework does not constitute approval to construct or operate a nuclear power station.

Namibia's interest in nuclear electricity is closely linked to its position as one of the world's leading uranium producers.

The country supplies uranium to international markets through mines including Rössing, Husab and Langer Heinrich, but does not operate a commercial nuclear power station.

President Netumbo Nandi-Ndaitwah has repeatedly called for Namibia to derive greater economic value from its uranium resources through domestic processing, electricity generation and industrial development.

The government is exploring international partnerships to obtain the technology, financing and expertise required for nuclear energy development.

Russia and China have emerged as potential cooperation partners, while NamPower continues examining available reactor technologies.

Haulofu has indicated that Namibia would not necessarily need to establish a complete domestic nuclear fuel industry before commissioning a reactor, as fabricated nuclear fuel could initially be imported.

The country's reliance on imported electricity has strengthened the argument for developing additional domestic generating capacity.

However, nuclear electricity would have to be assessed alongside renewable energy, gas-to-power projects and other supply options, particularly in relation to construction costs, implementation schedules and long-term electricity prices.

Namibia's nuclear strategy, proposed legislation and institutional appointments demonstrate that preparations have begun, but the government has yet to identify a reactor project that has received final investment approval.

RIB Industries



WHO WE ARE

RIB Industries is a proudly Namibian printing and branding company specialising in commercial printing, corporate branding, promotional products and corporate wear. We partner with businesses, government institutions and organizations to deliver high-quality solutions that strengthen brand visibility and create a lasting impression.

Our services include corporate publications, annual reports, large-format printing, signage, vehicle branding, promotional merchandise and custom branded apparel. From concept to production, we provide tailored, end-to-end solutions designed to meet the unique requirements of every client.

Driven by quality, reliability and exceptional craftsmanship, we are committed to delivering professional results that help organisations communicate their brand with clarity, consistency and confidence.



COMMERCIAL & CORPORATE PRINTING

High-quality print solutions that support professional communication, reporting, and brand consistency.

- Annual reports
- Business profiles & company portfolios
- Books, magazines & photobooks
- Brochures, flyers, posters & calendars
- NCR books & notebooks
- Business cards & letterheads

PROMOTIONAL ITEMS

Branded promotional products that keep your brand visible, practical, and memorable.

- Branded pens
- Notebooks
- Water bottles
- Key holders
- USBs
- Corporate gift packs



BRANDING & LARGE FORMAT PRINTING

High-impact branding solutions designed to increase visibility across multiple platforms and environments.

- Vinyl printing
- Banners
- Window branding
- Vehicle branding
- Event signage

CORPORATE WEAR

Professional branded apparel that promotes brand identity, consistency, and team unity.

- Shirts
- Caps
- Jackets
- Overalls
- Branded uniforms





+264 61 263206
management@ribindustries.com
www.ribindustries.com
Copper Street 27-31, Prosperita, Windhoek, Namibia

NUCLEAR ENERGY



10,447 tonnes of uranium fuel nuclear ambitions

Namibia produced 10,447 tonnes of uranium oxide in 2025, strengthening its position as a major supplier to the international nuclear industry as President Netumbo Nandi-Ndaitwah pushes for the country to move beyond uranium exports and begin generating nuclear electricity domestically.

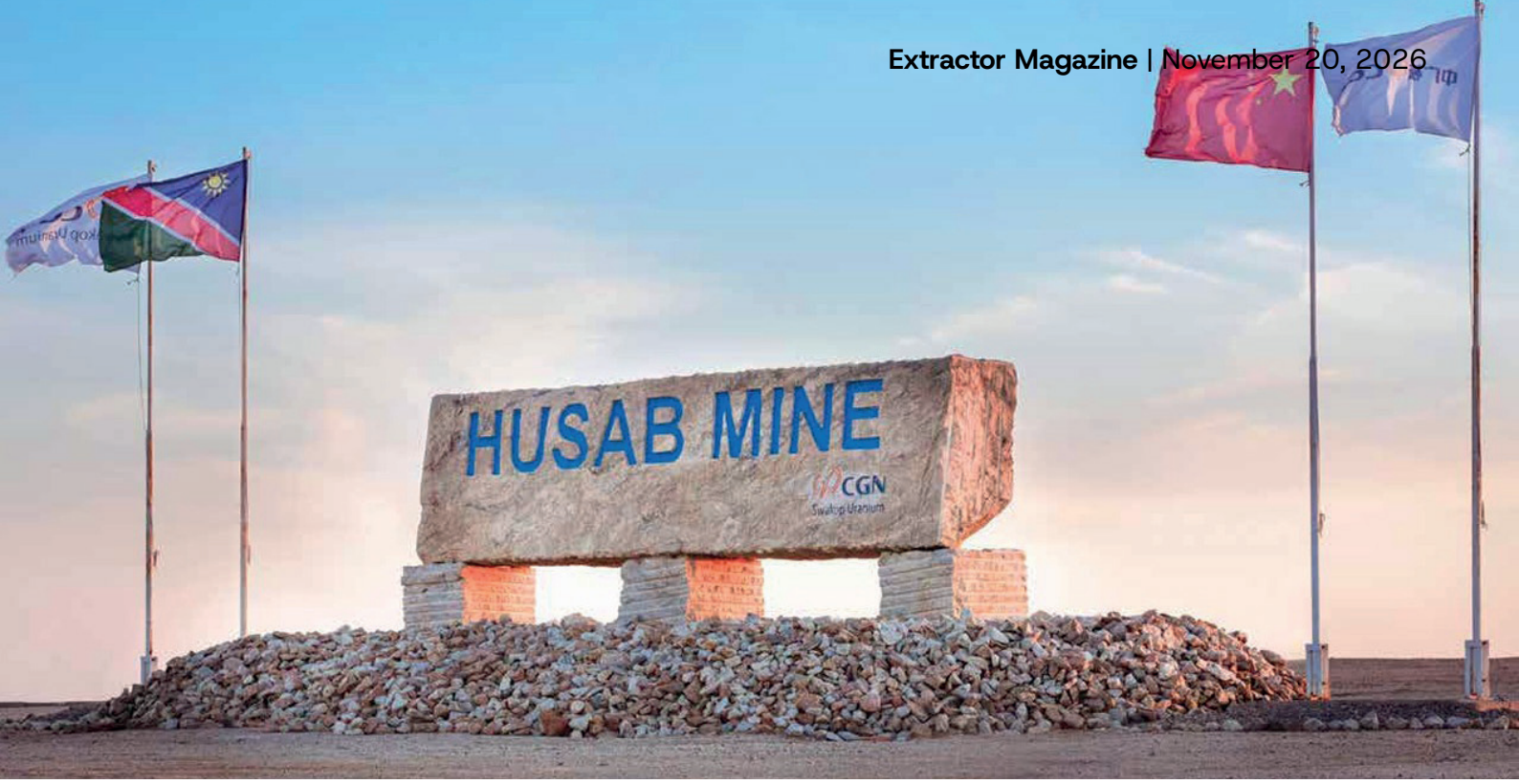
The combined production from Husab, Rössing and Langer Heinrich is equivalent to approximately 8,862 tonnes of contained uranium, but the country continues to export its uranium concentrate for further processing and use in nuclear power stations abroad.

Speaking through Prime Minister Elijah Ngurare at the Third National Nuclear Science and Technology Conference in Swakopmund in November 2026, Nandi-Ndaitwah said Namibia must expand its participation in the nuclear value chain, including uranium conversion, electricity generation and medical radioisotope production.

"Uranium is the primary strategic resource that fuels the global nuclear industry. We believe it is time for Namibia to take its rightful place on the world stage in the nuclear industry's value chain—not merely as a supplier of raw uranium ore, but as an industrial powerhouse."

The president said the government wants to increase the nuclear industry's contribution to gross domestic product from 3.2% to 4% by 2030, while reducing the country's dependence on imported electricity.

She noted that Namibia had imported between 40% and 65% of its electricity in recent years and called for the country to work towards



becoming a net exporter of electricity.

The government has commissioned a roadmap for a national nuclear power programme and established a Nuclear Energy Programme Implementing Organisation under the Office of the Prime Minister.

The latest announcements build on Nandi-Ndaitwah's April 2025 call for Namibia to develop its own nuclear power station, when she argued that the country's uranium resources should contribute directly to domestic electricity generation.

Three mines produce 10,447 tonnes

Figures published by the Namibian Uranium Association show that Husab remained the country's largest uranium producer in 2025, with 5,430 tonnes of uranium oxide.

Rössing followed with 3,185 tonnes, while Langer Heinrich produced 1,832 tonnes as operations continued recovering from the mine's prolonged suspension.

The combined output represents approximately 8,862 tonnes of contained uranium, using the conversion factor applied to uranium oxide concentrate.

The World Nuclear Association ranked Namibia as the world's third-largest uranium producer in 2024, behind Kazakhstan and Canada.

Namibia produced 7,333 tonnes of contained uranium that year, representing approximately 12% of global mined uranium production.

Kazakhstan produced 23,270 tonnes, while Canada recorded 14,309 tonnes.

The association's October 2026 international production statistics do not yet establish Namibia's final ranking for 2025.

The country's production capacity is concentrated in the Erongo Region, where its three operating uranium mines have become important suppliers to the global nuclear fuel market.

Husab remains largest producer

Husab produced 5,430 tonnes of uranium oxide in 2025, an increase of approximately 4% from the previous year.

According to the Namibian Uranium Association, the mine excavated 114 million tonnes of material and processed more than 12.32 million tonnes through its milling operations.

The mine also invested N$132 million in exploration, completing approximately 74,000 metres of drilling to improve resource confidence and identify additional mineralisation.

Husab is operated by

Swakop Uranium, which is 90% owned by Taurus Minerals and 10% by Namibia's state-owned Epangelo Mining Company.

Taurus is owned by China General Nuclear Power Group and the China-Africa Development Fund.

The mine began producing uranium oxide in December 2016 and has become one of the world's largest individual uranium operations.

Rössing, meanwhile, increased production by 22.5% to 3,185 tonnes in 2025.

The mine began operating in 1976 and is approaching 50 years of uranium production.

Its Phase 4 expansion involves extending the main open pit to access additional uranium-bearing material, with the mine's planned operating life extended to 2036.

Rössing is controlled by China National Nuclear Corporation through China National Uranium Corporation, following the acquisition of Rio Tinto's majority shareholding in 2019.

Langer Heinrich produced 1,832 tonnes during the 2025 calendar year after recommencing commercial production in March 2024.

Operator Paladin Energy subsequently reported production of 4.82 million pounds of uranium oxide, equivalent to approximately 2,186 tonnes, during its financial year ended 30 June 2026.

Paladin recorded US$304.3 million in revenue from sales of 4.35 million pounds at an average realised price of US$70 per pound.

President wants uranium used at home

Nandi-Ndaitwah first publicly called for a nuclear power station during her visit to Rössing in April 2025, arguing that Namibia should use its uranium resources to support domestic development.

In her official address, she said the country should begin identifying international partners capable of supporting nuclear electricity generation.

"Our Uranium should be used for peaceful purposes to power Namibia, to develop our nation and the globe."

The president reinforced that position during her State of the Nation Address on 24 April 2025, when she identified uranium as a resource that could contribute to Namibia's electricity mix.

She acknowledged that the country did not yet have a confirmed timeline for constructing a nuclear power station but committed the government to beginning discussions during the 2025/26 financial year.

Her position developed further during a July 2026 visit to China General Nuclear Power Corporation's Daya Bay nuclear power site, where she examined how uranium is processed and used to generate electricity.

Speaking after the visit, Nandi-Ndaitwah said Namibia should maximise the benefits of its uranium resources.



"As a producer of uranium, we cannot run away. We cannot allow our natural resources not to be used by us to the maximum, and the maximum is when it's going to create energy," she said.

The president confirmed that Namibia was developing a nuclear energy policy that would require legislative support before the country could proceed with electricity generation.

Etango moves towards production

Namibia's uranium production capacity could expand further following Bannerman Energy's positive final investment decision on the Etango project on 23 October 2026.

The decision allows the project to move towards full-scale construction after the completion of a strategic financing arrangement involving CNNC Overseas Limited.

Bannerman retains 55% of the Etango joint venture, while CNNC Overseas holds 45%. The joint venture owns 95% of the project.

Etango is expected to produce an average of approximately 3.5 million pounds of uranium oxide annually, equivalent to about 1,588 tonnes, with commissioning and first production planned for 2028.

Other proposed developments include Deep Yellow's Tumas project and Forsys Metals' Norasa project.

Their eventual contribution to national production will depend on financing, regulatory approvals, construction schedules and uranium market conditions.

The additional projects could strengthen Namibia's position as an international uranium supplier, although increased mining production would not automatically establish domestic nuclear electricity generation.

Namibia currently processes uranium-bearing ore into uranium oxide concentrate, which is exported for further processing into nuclear fuel.

The country does not operate commercial uranium conversion, enrichment or nuclear fuel fabrication facilities and has no nuclear power station.

Producing electricity from uranium requires additional stages of industrial processing, depending on the reactor technology, as well as specialised nuclear engineering, safety systems and regulatory oversight.

The government's proposed nuclear programme would therefore involve investments extending well beyond the existing uranium mines.

At the Swakopmund conference, Nandi-Ndaitwah identified small modular reactors and microreactors as technologies worth examining for electricity generation, seawater desalination, green hydrogen production and industrial manufacturing.

She also called on institutions of higher learning to expand nuclear science education and prepare Namibians to participate in the emerging industry.



NUCLEAR ENERGY

Namibia studies Chinese nuclear technology ahead of power plans

Namibian officials have examined China's nuclear power technology, reactor operations and electricity generation infrastructure as the country prepares the technical and institutional foundations for introducing nuclear electricity generation.

The National Commission on Research, Science and Technology (NCRST) reported in August 2026 that Namibia had participated in a nuclear industry development seminar in China, which combined technical presentations with visits to nuclear facilities, research institutions and equipment manufacturers.

The programme, held from 14 July to 3 August, exposed participants to nuclear electricity planning, grid integration, reactor safety, regulatory requirements and specialised skills development.

NCRST was represented by senior programme officer Dr Mutalipula Siyengwa-Muchila, who participated in engagements involving Chinese government institutions, researchers and nuclear industry specialists.

The visits took place in Beijing, Hainan, Jiaxing and Shanghai, where participants examined technologies and institutional arrangements supporting China's nuclear industry.

The engagement comes as Namibia develops its nuclear energy policy and examines the possibility of generating electricity from uranium, a mineral it has mined and exported for decades without using it for domestic nuclear power production.





The Chinese programme introduced Namibian participants to nuclear electricity generation, equipment manufacturing, radiation technology and the management of nuclear facilities.

At the Hainan Nuclear Power Base, the delegation was introduced to small modular reactor technology and simulation systems used to demonstrate nuclear plant operations.

Small modular reactors are generally designed to produce less electricity than conventional large nuclear power stations, with developers promoting modular construction and the possibility of introducing generating capacity in smaller increments.

The delegation also visited Shanghai Electric, where discussions covered nuclear power equipment manufacturing, production processes and quality assurance.

At the Jiaxing Nuclear Power Exhibition Hall, participants examined China's nuclear industry development, while a visit to Atom High-Tech introduced them to radiopharmaceutical production and irradiation technologies.

According to NCRST, the programme emphasised long-term planning, effective institutional and regulatory frameworks, specialised skills development and sustained public engagement as requirements for establishing a nuclear industry.

The commission said participation would strengthen institutional knowledge while creating opportunities for research, innovation, human capital development, technology transfer and international scientific cooperation.

It also identified opportunities to introduce young Namibians to nuclear science through school outreach programmes, science fairs and initiatives encouraging careers in science, technology, engineering and mathematics.

The programme was a technical familiarisation and capacity-building exercise rather than formal certification to operate nuclear reactors. Developing a nuclear power station would require further specialised education, practical

experience and regulatory preparation.

Nuclear power enters government planning

The Chinese engagements come as Namibia considers how nuclear electricity generation could become part of its future energy supply.

President Netumbo Nandi-Ndaitwah confirmed during her July 2026 state visit to China that the government was developing a national nuclear energy policy and conducting research into the requirements for introducing nuclear electricity generation.

Speaking after visiting China General Nuclear Power Corporation's Daya Bay nuclear power site in Shenzhen, she said the policy would need legislative backing before the country could proceed.

"So, currently, we are busy putting up our nuclear energy policy. Once we finalise it, it has to be backed by the law, and we proceed," she said.

The president also confirmed that the government was examining how a nuclear programme could be implemented safely.

"And already, we are making research as to how we are going to handle this situation, but definitely we need it. It has to come at one point in the lifetime of Namibia. It has to come," she said.

Her comments indicate that nuclear electricity generation remains a government ambition requiring further policy development, technical assessments and legislative preparation.

The visits to Chinese facilities therefore provide Namibian institutions with exposure to technologies and operational systems that could inform future decisions.

However, the Chinese seminar did not result in an announced agreement to construct a nuclear power station in Namibia, and no Chinese reactor supplier has been selected.



Nandi-Ndaitwah's visit to the Daya Bay nuclear power site on 7 July provided another opportunity for Namibia to examine China's experience in generating electricity from nuclear fuel.

According to CGN's statement issued on 8 July, the president visited the facility's observation deck and Nuclear Power Science and Technology Museum, where she received briefings on the development and operation of China's nuclear industry.

CGN chairman Yang Changli outlined the corporation's nuclear technology capabilities, research activities and international operations, including its investments in Namibia.

The president also asked questions about uranium mining and nuclear fuel production, reflecting the government's interest in understanding how uranium moves from mining operations into the nuclear electricity supply chain.

Daya Bay began commercial operation in 1994 and became one of China's first major commercial nuclear power developments.

Its experience provides an example of the infrastructure, operational expertise and long-term institutional arrangements required to sustain nuclear electricity generation.

The presidential visit also focused on technology transfer, skills development and opportunities to add value to Namibia's mineral resources.

CGN already has a controlling interest in Namibia's Husab uranium mine, operated by Swakop Uranium, giving the corporation an established commercial relationship with the country.

China National Nuclear Corporation, a separate Chinese state-owned nuclear company, controls Rössing Uranium and holds interests in the Langer Heinrich and Etango uranium projects.

These investments demonstrate China's substantial position in Namibia's uranium industry, although ownership of mining assets does not establish a commitment to develop nuclear electricity infrastructure.

Skills and regulation remain challenges

Namibia's uranium mining experience provides an existing foundation in mineral processing, radiation protection and environmental management, but operating nuclear power stations requires additional technical capabilities.

A nuclear electricity programme would need reactor engineers, nuclear safety specialists, radiation protection officers, maintenance personnel, emergency response teams and independent regulators.

The country would also need arrangements governing nuclear fuel procurement, radioactive waste management, plant security, emergency preparedness and eventual decommissioning.

These requirements extend beyond the responsibilities associated with uranium extraction and processing.

The Chinese seminar addressed several of these issues, including nuclear safety, human resource development, regulatory systems and electricity-grid integration.

Grid integration is particularly important because nuclear generating facilities must operate within the technical limits of the electricity network, including its ability to accommodate generating capacity and respond to changes in electricity demand.

Namibia's National Nuclear Science and Technology Conference, held in Swakopmund from 18 to 20 November, also examined nuclear industry development and the institutional requirements associated with expanding nuclear applications.

The conference programme included discussions on uranium production and beneficiation, small modular reactors, human resource development, nuclear governance, radiation safety, nuclear security and safeguards.

The involvement of research institutions, universities, regulators and industry representatives reflects the broad range of expertise needed to support a nuclear electricity programme.

Developing that expertise would require sustained investment in education, technical training and institutional capacity rather than relying exclusively on short-term international visits.

Namibia's nuclear ambitions also raise questions about how much of the uranium value chain could eventually be developed domestically.

Uranium oxide produced by mines must undergo further processing before it can be manufactured into fuel suitable for nuclear reactors.

Depending on the reactor technology, these stages can include conversion, enrichment and fuel fabrication.

Namibia does not currently possess the complete industrial infrastructure needed to manufacture nuclear reactor fuel domestically.

However, local fuel manufacturing is not an absolute prerequisite for nuclear electricity generation, as countries can import manufactured nuclear fuel under international supply arrangements.

Nandi-Ndaitwah has linked the country's nuclear ambitions to the broader objective of obtaining greater economic benefits from Namibia's uranium resources.

During her visit to China, she argued that the country should examine how its uranium could contribute directly to domestic electricity generation rather than remaining primarily an export commodity.



The Extractor
Mining, Energy, Construction and Logistics

Physical Address:
Sinclair office park, Sinclair street, Eros

Website:
www.theextratormagazine.com

Subscriptions:
+264 81 848 4264

Editorial
Allexer Namundjembo | +264 85 777 9725

Sales and Marketing:
info@theextractormagazine.com

Design & Layout:
Apex Creatives Namibia
Apexcreativesnam@gmail.com
+264 81 751 7470