



INBO WORLD BASIN SUMMIT 2026

Uma nova perspetiva sobre a segurança hídrica na Namíbia

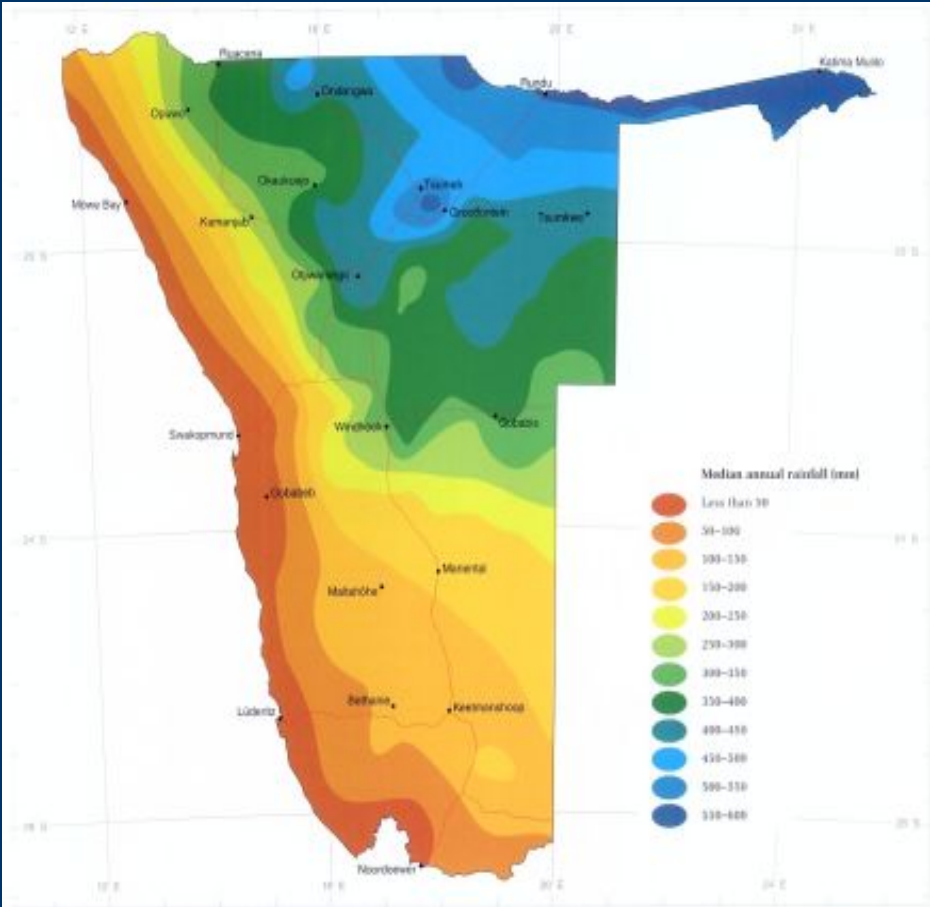
O papel dos sistemas hidrográficos no abastecimento de água nas zonas urbanas e rurais

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O IMPERATIVO HIDROGEOLÓGICO



NATIONAL WATER METRICS & TARGETS

Fatores fundamentais de escassez

- ! A Namíbia está entre os países com maior escassez de água a nível mundial.
- ! Variabilidade da precipitação: Quase nula (na costa) a 600 mm (em direção ao nordeste).
- ! As taxas de evaporação reduzem drasticamente a eficiência do armazenamento à superfície ao ar livre.

National Water Metric	Statistics and Targets
Total de água doce renovável	600 million m ³ /a
2030 Demand Projection	772 million m ³ /a
Cobertura do acesso à água nas zonas urbanas	99%
Cobertura do acesso à água nas zonas rurais	87% (Target 95% by 2022)
Valor da Infraestrutura Nacional	N\$ 10.82 billion (planned 5-7 years)

QUADRO DE GOVERNAÇÃO INTEGRADA



Viragem legislativa

Transição da Lei da Água de 1956 para a Lei de Gestão de 2013 (que entrou plenamente em vigor em agosto de 2023).



A Unidade da Bacia

A unidade de gestão principal passou a ser as bacias hidrográficas, transferindo o poder de decisão para as partes interessadas.



BMCs

As Comissões de Gestão das Bacias Hidrográficas facilitam a repartição equitativa dos recursos e a monitorização da poluição.

IWRM

This map illustrates the Waterberg Pipeline Scheme and its associated infrastructure in Namibia. The scheme is a complex network of pipelines (blue lines) and reservoirs (yellow hexagons) designed to transport water from the Waterberg Raw Water Reservoir & Water Treatment Plant to various parts of the country.

Key Infrastructure and Schemes:

- Waterberg Pipeline Scheme:** The main pipeline network originating from the Waterberg Raw Water Reservoir & Water Treatment Plant, passing through the Otjiwarongo area, and extending towards the Windhoek area.
- Grootfontein - Omatako Canal:** A canal connecting the Grootfontein area to the Omatako Dam.
- Omatako - Von Bach Scheme:** A pipeline scheme connecting the Omatako Dam to the Von Bach Dam.
- Okongava - Karibib/Navachab Scheme:** A pipeline scheme connecting the Okongava area to the Karibib and Navachab areas.
- Waterberg Borehole Scheme:** A scheme involving boreholes in the Waterberg area.
- Goblenz Borehole Scheme:** A scheme involving boreholes in the Goblenz area.
- Seis Borehole Scheme:** A scheme involving boreholes in the Seis area.
- Windhoek Aquifer:** The primary water source for Windhoek, located near the Windhoek Bulk Reservoir.

Key Locations and Reservoirs:

- Waterberg Raw Water Reservoir & Water Treatment Plant:** The source of water for the scheme.
- Waterberg NP:** Waterberg National Park.
- Okakarara:** A town located along the pipeline route.
- Omatako Dam:** A major dam on the Omatako River.
- Omatako Booster Pump Station:** A station for boosting water flow.
- Okavango Reservoir:** A reservoir in the Okavango area.
- Navachab Reservoir:** A reservoir in the Navachab area.
- Okavango Reservoir:** A reservoir in the Okavango area.
- Swakoppoort Dam:** A dam on the Swakop River.
- Von Bach Dam:** A dam on the Von Bach River.
- Windhoek Bulk Reservoir:** A reservoir in Windhoek.
- Seis Airport Reservoir:** A reservoir near the Seis Airport.

Other Features:

- Windhoek International Airport:** Located near the Windhoek Bulk Reservoir.
- Windhoek:** The capital city of Namibia.
- Windhoek Aquifer:** The primary water source for Windhoek.

A segurança de Windhoek assenta no seu papel de «cidade ligada a uma bacia hidrográfica», que gere uma combinação de recursos de alto risco.

Vulnerability: Levels fell to 12.6% in early 2024.

Aumento: Transferências da Bacia Cárstica de Tsumeb ao longo de centenas de quilómetros.

TECHNOLOGICAL INNOVATION

Direct Potable Reclamation (DPR)

Windhoek established the world's first DPR plant in 1968. The current facility provides 25% of urban supply.

Multi-Barrier Purification:

1. Pre-ozonation & Coagulation
2. Dissolved Air Flotation (DAF)
3. Dual Media Filtration
4. Main Ozonation & BAC/GAC
5. Ultrafiltration (Physical Barrier)



Managed Aquifer Recharge (Mar)

Strategic "Water Banking"

The Windhoek Managed Aquifer Recharge Scheme (WMARS) minimizes evaporation by injecting treated surface water into the ground.

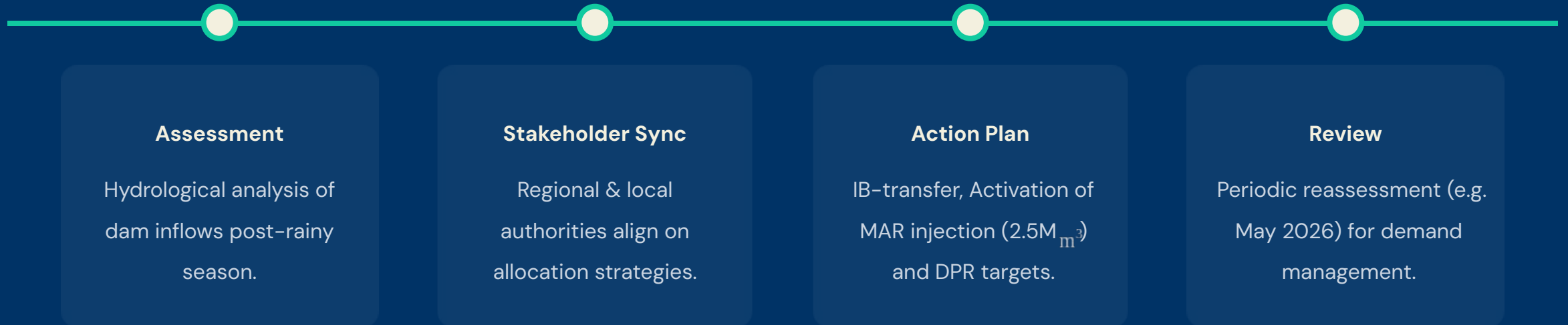
480m³/h

Current managed recharge installed capacity

ADAPTIVE GOVERNANCE CYCLE

The Central Area of Namibia (CAN) Workshop Model

A science-based three-year horizon assessment for risk mitigation.

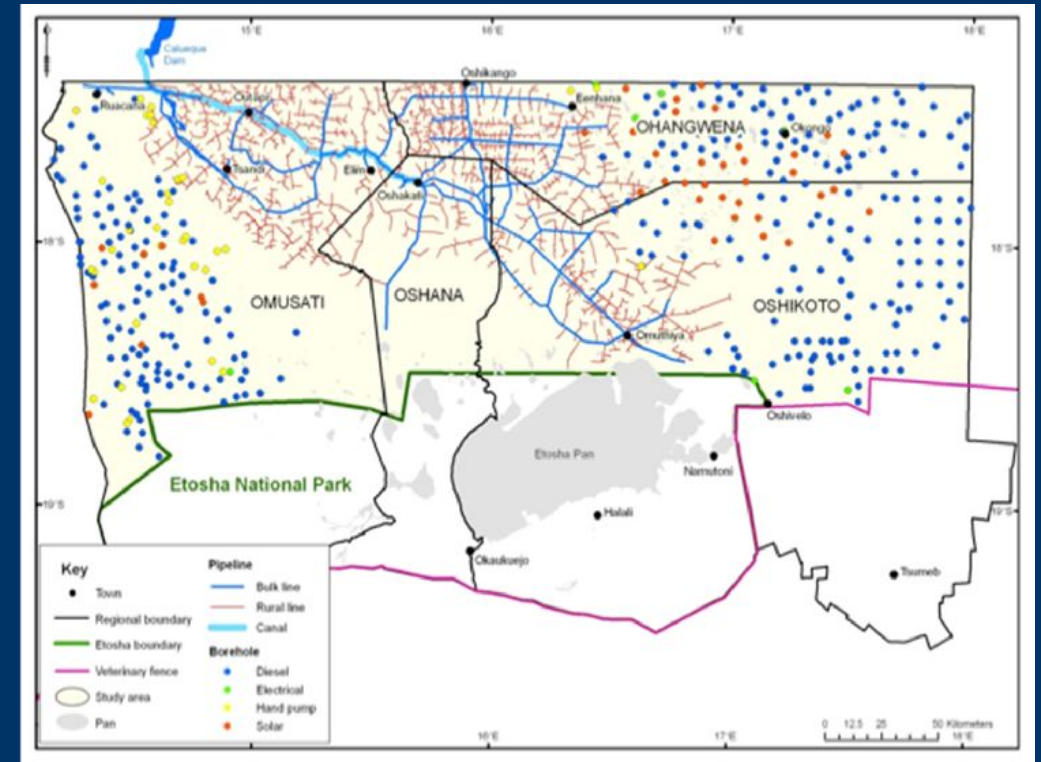


THE KUNENE RIVER: TRANSBOUNDARY SYNERGY

Transboundary water cooperation

Shared between Namibia and Angola, managed via the Permanent Joint Technical Commission (PJTC).

- **Strategic Supply:** 154-km canal supplies the northern regions (Oshana, Omusati, etc.).
- **Calueque Dam:** Landmark transboundary project for regional security – water use agreement.
- **The Pipeline Debate:** Balancing evaporation loss reduction vs. rural livestock access.



THE WATER-ENERGY-FOOD (WEF) NEXUS



Water + Energy

Ruacana (240 MW) provides 40% of national power; highly sensitive to basin hydrology.



Water + Food

Etunda Green Scheme relies on stable flows for food production

KEY MESSAGES

- ❑ - Sustainable water security is fundamentally **dependent on active participation and collaboration** both within and across international borders.
- ❑ - There is an urgent need to **reinforce multi-level governance frameworks to manage shared water resources** effectively and equitably.
- ❑ - Water security **strategies must be "risk-informed,"** ensuring that planning accounts for climate variability and potential resource scarcity.
- ❑ - Resilient and inclusive **development requires a holistic approach** that integrates infrastructure development, resource management, and governance at the basin level.

