

WORLD BASIN SUMMIT 2026

Session 5.

Circular Water Economy for Basin Resilience

The Ceará Water Management Experience



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ABU DHABI, UNITED ARAB EMIRATES



WORLD BASIN SUMMIT 2026

INBO – International Network
of Basin Organizations



CASTANHÃO
Strategic
Reservoir



**WATER
CONVEYANCE AXIS**
Interbasin Water
Transfer System



URBAN WASTEWATER REUSE
Turning waste into
a valuable resource



DESALINATION
Expanding supply with
non-conventional sources



WATER REUSE IN AGRICULTURE
More productivity with
water efficiency



BASIN COMMITTEES
Social participation
for better decisions

Ceará: de um século de ação à resiliência hídrica

Uma trajetória de inovação, integração e adaptação

CEARÁ NO PASSADO

VULNERÁVEL E DEPENDENTE



Secas recorrentes e falta de infraestrutura hídrica limitavam o desenvolvimento e afetavam vidas.

UM CAMINHO DE TRANSFORMAÇÃO (1906–2002)

- 1906 – 2002**  GRANDES RESERVATÓRIOS E PROGRAMAS
Construção de açudes e barragens em diferentes fases (1906 a 2002), ampliando a capacidade de armazenamento e a segurança hídrica.
- 1987**  ESTRUTURAÇÃO DO SISTEMA SRH
Criação da Secretaria dos Recursos Hídricos do Ceará, marco inicial da gestão integrada e descentralizada das águas do Ceará.
- 1993**  CANAL DO TRABALHADOR
Primeira experiência brasileira de transferência hídrica entre bacias.
- 1997**  GESTÃO DE BACIAS HIDROGRÁFICAS
Instalação do primeiro CBH no Ceará (CBH do Rio Curu – 17/10/1997).
- 2002 – 2011**  EIXÃO DAS ÁGUAS
Sistema de transposição entre bacias que amplia a oferta de água no Estado.
- 2017**  INTEGRAÇÃO DO SÃO FRANCISCO
Nova fonte de água para o semiárido cearense.
- 2011 – 2026**  INOVAÇÃO E DIVERSIFICAÇÃO
Reúso, dessalinização e novas fontes: economia circular da água.
- 2026 E DIANTE**  FUTURO RESILIENTE E SUSTENTÁVEL
Segurança hídrica, adaptação climática e desenvolvimento com sustentabilidade.

CEARÁ HOJE

RESILIENTE E INOVADOR



Gestão integrada, infraestrutura robusta e inovação gerando desenvolvimento econômico e social.



MAIS ÁGUA
MAIS DESENVOLVIMENTO



GESTÃO PARTICIPATIVA
E DESCENTRALIZADA



INOVAÇÃO E
SUSTENTABILIDADE



INTEGRAÇÃO E
COOPERAÇÃO



Cuidar da água é cuidar do Ceará.
Esse é o nosso compromisso.

WATER GOVERNANCE BEHIND CEARÁ'S WATER TRANSFORMATION

Strong institutions, social participation and data-driven management



Water resilience is not achieved by infrastructure alone, but through the integration of **governance**, **social participation** and **evidence-based** decision-making.



12
River Basins
Under
Management



157
Strategic
Reservoirs
Monitored



+ 9
Million
People
Benefited



+ 40
River Basin
Committees with
Active Participation

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Circular Water Economy for Basin Resilience

Diversifying the water matrix with unconventional resources:

The Experience of Water Management in Ceará



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COGERH
Water Resources
Management Company



CEARÁ
STATE GOVERNMENT
SECRETARIAT OF WATER RESOURCES

INFRASTRUCTURE CONNECTING WATER AND DEVELOPMENT

Integration of sources, systems and territories to ensure water security throughout Ceará



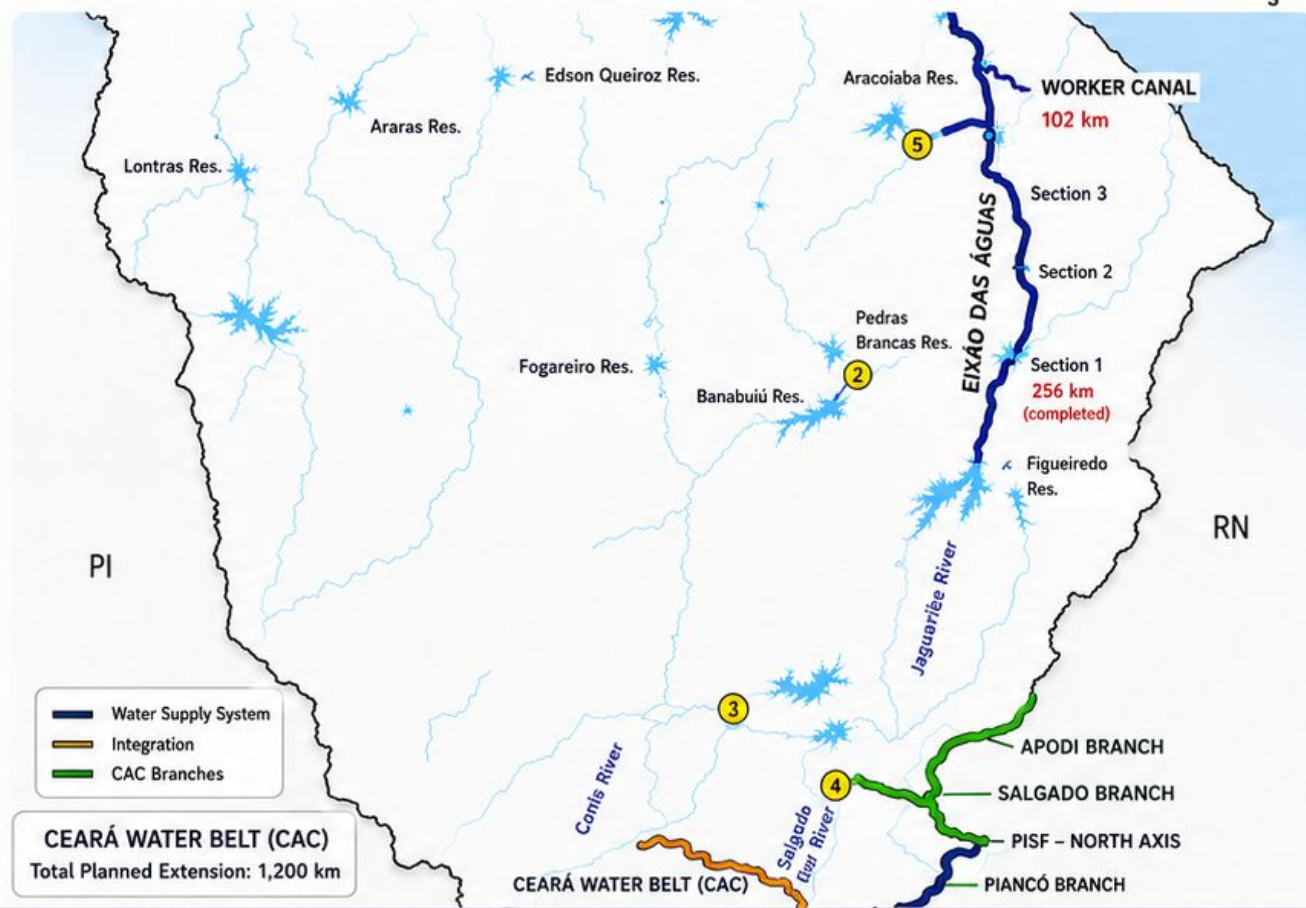
LEGEND

- Strategic Reservoirs
- Eixão das Águas
- São Francisco Integration
- Water Supply Systems and Conveyance Infrastructure
- Served Regions

CEARÁ WATER BELT (CAC)

- Section 1 – Under Construction – 145.3 km
- Section 2 – 271 km
- Section 3 – 137 km
- Branch 1 – 53 km
- Branch 2 – 20 km
- Eastern Branch – 304 km
- Western Branch – 182 km

Total Planned Extension: 1,200 km



CEARÁ WATER BELT (CAC)
Total Planned Extension: 1,200 km

AN INTEGRATED SYSTEM FOR LIFE AND DEVELOPMENT

- +157** Strategic Reservoirs Monitored
Storage capacity regulated for multiple uses
- +1,000 km** of Water Transfer Canals and Conveyance Systems
Water transported from areas of surplus to areas of demand
- 9+ Million** People Benefited
Urban and rural water supply
- Industry and Agribusiness**
Water security for production and job creation
- Environment**
Water to preserve ecosystems and promote sustainability

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Water Grid Project: bringing water directly to people

From regional water security to community water security



CEARÁ WATER GRID

From regional water security to community water security

LEGEND

WATER GRID SYSTEM

- Conveyance System
- Intake / Pumping Station
- Interconnection

STRATEGIC INTEGRATIONS

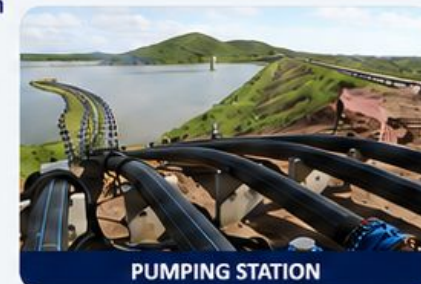
- CAC – Water Belt (Cinturão das Águas)
- Water Axis
- PISF – North Axis
- Salgado & Apodi Branches
- Piancó Branch
- Strategic Reservoirs
- Municipalities Served



The challenge is not just to move water between basins, but to ensure it arrives safely and permanently to urban and rural populations.

PROGRAM OBJECTIVES

- Universalize water supply**: Deliver quality water to all urban and rural communities.
- Serve municipalities and rural communities**: Expand permanent and sustainable access to water.
- Reduce climate vulnerabilities**: Ensure water security in the face of droughts and climate change.
- Integrate existing systems**: Connect major local and regional water infrastructures and distribution systems.
- Promote regional development**: Water to improve quality of life and boost the economy in all regions.



PUMPING STATION



WATER GRID MAIN PIPELINE



SUPPORTING RESERVOIR



MORE THAN **30** PLANNED SYSTEMS



MORE THAN **150** MUNICIPALITIES AND COMMUNITIES BENEFITED



MILLIONS OF **PEOPLE** SERVED OR TO BE SERVED



INTEGRATION WITH STRATEGIC RESERVOIRS AND LARGE WATER TRANSPORT SYSTEMS



PERMANENT SERVICE WITH MORE QUALITY, REGULARITY AND WATER SECURITY



Ceará has evolved from a drought-fighting policy to a policy that ensures permanent water access for all.



Long-term planning



Territorial integration



Integrated operation



Resilience in times of drought



Sustainable development

CIRCULAR WATER ECONOMY

Transforming waste into resources and ensuring water security for today and the future.






The circular water economy expands sources, reduces environmental impacts and promotes sustainable development for Ceará.

1 DESALINATION

Expanding non-conventional sources



-  Water security for coastal regions
-  Complement to strategic reservoirs
-  Resilience to climate change

2 URBAN WASTEWATER REUSE

Treated wastewater for industrial use



DOMESTIC SEWAGE → ADVANCED TREATMENT → HIGH-QUALITY WATER FOR INDUSTRY






-  Replacement of potable water in industrial processes
-  Reduced withdrawals from reservoirs and rivers
-  Sanitation integration and water security
-  Sustainability and efficiency for industry

3 CIRCULAR AQUACULTURE

Water reuse in shrimp farming



-  Water reuse
-  Reduced freshwater withdrawals
-  More sustainable and competitive shrimp production

BENEFITS FOR
CEARÁ AND ITS PEOPLE



LESS PRESSURE ON
RESERVOIRS
More water available
for human consumption



CLIMATE CHANGE
ADAPTATION
More resilience and
water security



EFFICIENT WATER USE
Every drop counts,
every drop returns



SUSTAINABLE ECONOMIC
DEVELOPMENT
Job creation, income
and innovation



The future of water security does not depend only on storing more water, but on **reusing** and **valuing** every available drop.

BEYOND INFRASTRUCTURE

The next generation of water management



WATER CREDIT

A new mechanism to value conservation actions and generate investments for water security.



FLOATING SOLAR ENERGY

Reducing operational costs and generating revenue to sustain the water system.



SMART OPERATIONS

Greater energy efficiency, lower operational cost and real-time management.



Water sustainability demands not only water, but also **innovation**, **efficiency** and **new financing sources**.

THANK YOU

Together, we work for a future with
safe, innovative and sustainable water.



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WATER
STRATEGIC RESOURCE



INTEGRATED
MANAGEMENT



INNOVATION
AND SUSTAINABILITY



DEVELOPMENT
FOR CEARÁ

Caring for **water** is caring for **Ceará**.
That is our commitment.