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The Contribution of Museums to Water Governance in Tackling Climate Change. The Role of Local Communities to Foster Innovation through Traditional Knowledge and Ancient HydroTechnologies (AHTs)

Waters of Belonging: Intercultural Dialogues on Water, Identity and Climate Justice.

Liliana Naval
Museu das Águas Brasileiras

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- ✓ When we speak about waters of belonging, we speak about the deep and invisible connections between water, identity, and life.
- ✓ In traditional territories, water is not only a resource, it is memory, identity, and a spiritual presence.

The water is who we are!

Waters of Belonging: Intercultural Dialogues on Water, Identity and Climate Justice.

Water resilience and traditional knowledge

- ✓ Indigenous lands preserve up to 70% more perennial springs than agricultural areas.
- ✓ Over nearly four decades, Indigenous territories lost only 1% of native vegetation, compared to 17% in private lands.
- ✓ Though they occupy 13% of Brazil's territory, Indigenous lands protect 19% of the country's remaining native vegetation.
- ✓ Globally, 82% of the planet's biodiversity lies within Indigenous territories.

Traditional hydro-technologies (AHTs)

Spring Protection

Spring Protection involves rituals and ecological care to maintain gallery forests, resulting in a remarkable increase of 70–80% in perennial springs and improved drought resilience.

Micro-Channeling

Micro-Channeling utilizes small hand-dug channels that follow the terrain, achieving 20–40% enhancement in infiltration while promoting wetland recovery and flood prevention for surrounding areas.

Natural Check Dams

Natural Check Dams employ logs, stones, and roots to slow water flow, facilitating aquifer recharge and reducing sedimentation, thereby creating natural pools that benefit local ecosystems.

Agro-Hydric Management

This approach focuses on moist-soil selection and living barriers, enhancing soil moisture and creating stable microclimates, ultimately improving drought resilience for local communities.

Sustainable Fishing

Seasonal barriers and natural pools in these systems promote species preservation and maintained flow, ensuring minimal impact on riverbeds while supporting biodiversity in aquatic environments.

Water Indicators

Utilizing sensory assessments for flow, clarity, and taste, this practice aims to reduce health risks by fostering continuous monitoring of water quality in indigenous territories.

What the Museu das Águas Brasileiras does.

1. Knowledge production and diffusion.

- ✓ Supports research on cultural water indicators
- ✓ Generates data on traditional indicators of water quality (e.g., sensory assessments, spiritual significance, ecological cues) and links them to scientific measurements.
- ✓ Facilitates intercultural dialogue:
- ✓ Promotes workshops and discussions that integrate indigenous knowledge with scientific research, fostering mutual understanding and collaborative management strategies.

Valuation of Parameters Related to the User's Health Status for the Akwẽ People

Health Condition	Severity Scale	Score
Systematic illness	Very poor	-2
Periodic illness	Poor	-1
Intermittent illness	Good	+1
No illness	Very good	+2

Scores to water users' health conditions, reflecting their perceived well-being in relation to water quality.

Water quality cannot be separated from its spiritual dimension. Perceptions of transparency, flow, and purity are linked not only to physical well-being but also to the spiritual integrity of the community.

Cultural and Sensory Water Quality Indicators (Akwẽ People)

Indicator	Parameter	Perception-Based Correlate	Cultural Meaning / Symbolism
Visual Perception	Transparency	Clear water is perceived as cleaner and of higher quality.	The Akwẽ community values water transparency, associating it with purity and safety for consumption.
Olfactory Perception	Odor	Absence of odor or natural smells is preferred; unusual odors suggest contamination.	Strange or unfamiliar smells are interpreted as signs of pollution or water deterioration.
Taste Perception	Flavor	Neutral-tasting water is preferred; unpleasant flavors lead to rejection.	Water acceptability is strongly linked to taste, especially in natural water bodies.
Flow Perception	Water Flow / Current	Moving water is perceived as fresher and cleaner.	Flowing water symbolizes renewal and vitality, being preferred for drinking and ritual use.
Vegetation Cover & Shade	Vegetation Protection	Dense vegetation indicates fresher, protected water.	Surrounding vegetation is seen as a sign of high-quality water, offering protection against contamination and regulating temperature.

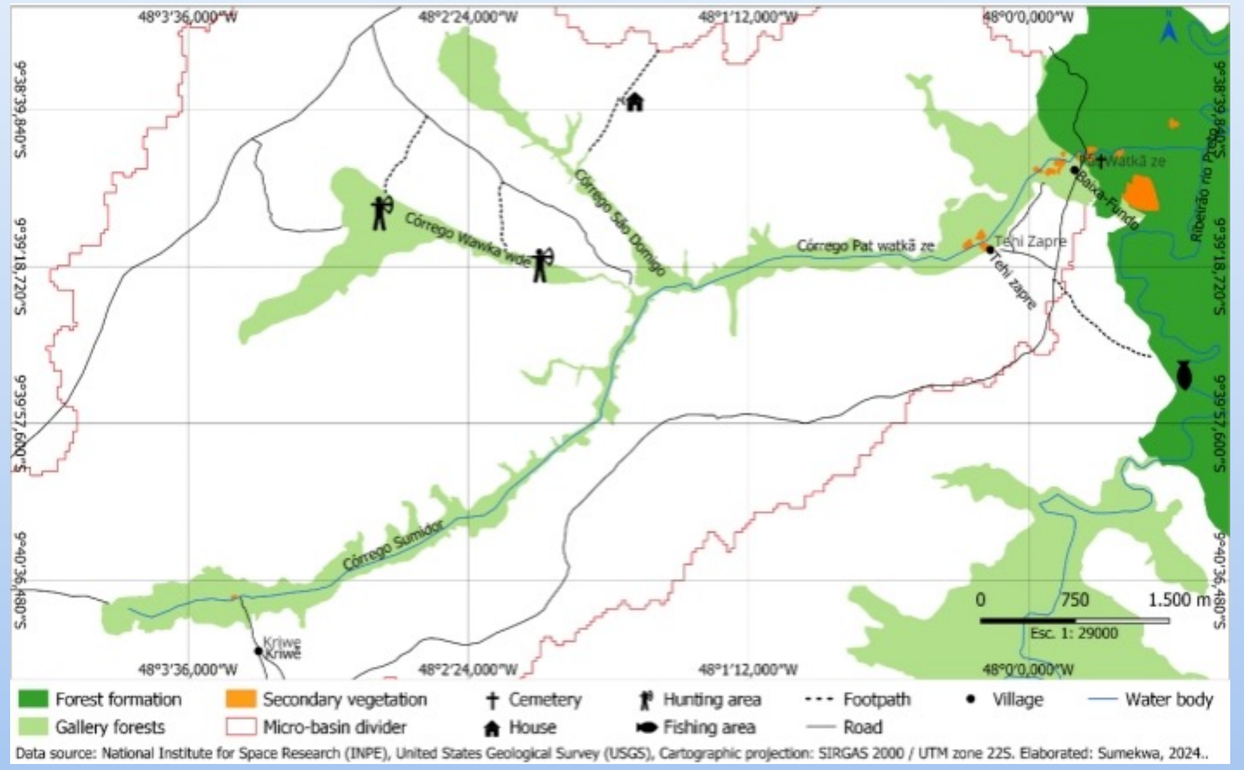
2. Community Training and Capacity Building

- ✓ Governance training: Builds community skills in water governance structures, decision-making processes, and participatory management.
- ✓ Rights and cultural protocols: Educates communities on legal frameworks, Indigenous water rights, and the application of cultural protocols in water management.
- ✓ Water quality, spring protection, and sustainable use: Provides practical training on monitoring water quality, protecting springs, maintaining ecological corridors, and implementing sustainable usage practices.

3. Building value through ownership and leadership, and promoting social protagonism in water production, conservation, and decision-making.

- ✓ Mapping springs, rivers, sacred sites, routes: Engages communities in mapping critical water resources and culturally significant locations to preserve heritage and inform management. Develops maps that serve as tools for local governance, environmental planning, and advocacy, empowering communities in negotiations and policy discussions.

- ✓ Digitalizing community knowledge: Transforms oral histories, traditional observations, and spatial knowledge into digital formats for long-term preservation and accessibility.



Region of the Pat Watkã Ze Stream microbasin (Baixa-Fundo), represented by social cartography

Integrate Indigenous values into water governance

Establishing Foundational Principles for Indigenous Water Governance

✓ How to embed Indigenous values and ethics in water management frameworks.

Effective Communication Strategies

✓ Approaches for dialogue between Indigenous communities, decision-makers, and stakeholders.

Integration of Indigenous Cultural Protocols

✓ Ways to formalize traditional practices and ceremonies in water management teams.

Building Trust and Capacity in Water Management Teams

✓ Training and engagement strategies to empower team members and strengthen collaboration

Funding and Resource Allocation

✓ Ensuring adequate financial support to implement culturally aligned water initiatives.

Integrated Water Management: 5 Key Points

1. Community Engagement & Knowledge Integration:
- ✓ Combine traditional knowledge (local sources, seasonal patterns, cultural practices) with scientific assessments (hydrology, climate models).

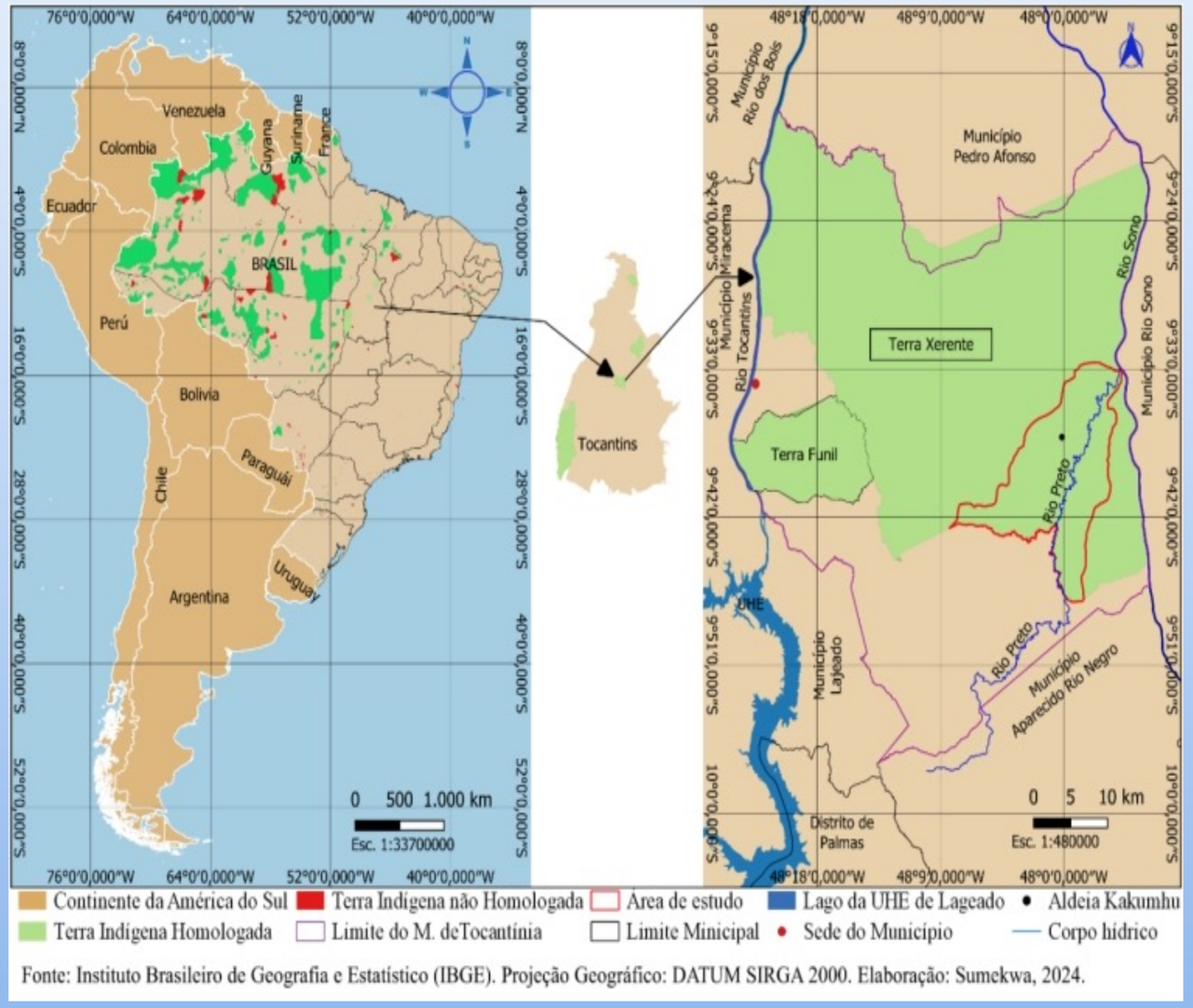
2. Goal Setting & Planning
- ✓ Define priorities balancing cultural, consumptive, and environmental water uses, ensuring community participation.

3. Co-Creation & Implementation of Strategies
- ✓ Integrate traditional practices (ceremonial access, seasonal use) with scientific tools (quality monitoring, collection technologies).

4. Monitoring, Evaluation & Adaptation
- ✓ Use both community observations and scientific data to track outcomes, adjust plans, and manage risks (droughts, contamination).

5. Capacity Building & Legal Compliance
- ✓ Train communities in traditional and scientific water management, while ensuring adherence to national water laws and sustainability practices.

This project is being developed in the Rio Preto sub-basin region of the Xerente (Akwe) land (Tocantins/Brazil).



Results and impacts

1. Strengthening community water governance
   - ✓ More participation by women, youth, and leadership
   - ✓ Reinforcing traditional norms of water care

2. Integrating science and traditional knowledge
   - ✓ Tools based on technical and cultural indicators
   - ✓ Institutional recognition of traditional epistemologies

3. Building community autonomy
   - ✓ Communities monitor their own water
   - ✓ Youth participate in knowledge transmission

4. Reducing water-related conflicts
   - ✓ Mapping clarifies use zones
   - ✓ Dialogue reduces tensions

5. Influencing public policy
   - ✓ Contributions to PGHs, DSEIs, Funai, basin committees
   - ✓ Promotion of culturally sensitive water management

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Thank You!

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https://museudasaguasbrasileiras.org

e.mail: museudasaguas@uft.edu.br

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