

BLUE SERIES POLICY BRIEF

Rivers, Lakes, and Aquifers: The Future of Basin Management

KEY POLICY MESSAGES

- » Basin organisations play a central role in water governance by coordinating across sectors and levels of government to manage, allocate, and protect water resources.
- » Policy frameworks should keep pace with new technologies and data tools while promoting participatory, in situ data systems.
- » By operating at the basin scale, these organisations are particularly well equipped to address complex and interconnected risks such as climate change, biodiversity loss, and groundwater depletion.
- » Adaptation planning benefits from basin management approaches that build trust, reflect the needs of local communities, and engage stakeholders meaningfully at all levels.

After 30 years of global support, integrated water resources management (IWRM) at the basin level is widely recognised as critical for sustainable water management. Yet implementation remains uneven. As anthropogenic and climate pressures on water resources intensify, delivering on IWRM requires strong basin organisations, inclusive planning, and better coordination across sectors and borders.



STRENGTHEN GOVERNANCE AND FINANCE OF TRANSBOUNDARY BASINS

Effective basin governance relies on well-resourced, inclusive institutions that coordinate across sectors and scales to manage surface water, groundwater, climate risks, and development pressures—but implementation remains uneven, especially in regions facing escalating environmental and social challenges.

Transboundary water management must balance national interests with shared goals. Working across borders is challenging when countries have different power levels or priorities. For example, [Dang](#) finds that countries vary widely in how well their treaties follow the tenets of international water law and that some treaties actually worsen asymmetrical power dynamics. For example, the Mekong region has witnessed weakening integration as Laos pushes forward with its hydropower development despite concerns from neighbours. [Owino](#), however, highlights more successful transboundary governance structures in East Africa, where Kenya and Uganda built cooperation by focusing on benefit-sharing dialogues, through a joint working group and support from regional commissions.

Despite its growing importance, shared groundwater has only recently appeared in water agreements. [Sterckx et al.](#) analyse a new trend toward the institutional inclusion of transboundary aquifers within Sub-Saharan African river basin organisations. While a good step forward, they highlight that the capacity of transboundary basin organisations has not been structurally improved and that broader changes are needed.



STRENGTHEN BASIN MANAGEMENT WITH MONITORING AND INFORMATION SYSTEMS

Adaptive policy frameworks should integrate the latest advances in monitoring tools and data analysis techniques and support socially embedded data systems.

As climate change, ecological degradation, and rising demand intensify pressure on river basins, the focus of monitoring and information systems is moving beyond purely physical data to include community priorities, ecosystem values, and financial modelling.

To unlock their full potential as platforms for communication, participation, decision-making and shared governance, monitoring and information systems must be supported by policies that encourage inclusive data sharing and the ground-truthing of advanced tools with local knowledge.

Engaging communities in the monitoring process builds trust, increases monitoring effectiveness, and aligns management planning with local values. [Hartwig et al.](#) show how the

Columbia Basin Monitoring Framework, which prioritises extensive community engagement and integrates community priorities into water management solutions, enhances sustainability, promotes regional water protection, and enables informed decision-making at various scales. It can serve as a model for similar networks in river basins across the globe.

Linking monitoring with financial mechanisms can also improve the sustainability of basin management. [Marques et al.](#) describe an innovative decision-support tool, FAISCA, in Brazil that simulates water charges based on watershed action plans to support both short- and long-term financial planning for watershed management and resolve finance gaps through a shared visioning approach.

Beyond monitoring, models can *support sustainable financing strategies*. In Kenya's Kapingazi Basin, [Karimi et al.](#) describe a community-driven model for financial participation where more than two-thirds of residents were willing to pay for improvements in water quality and quantity.

PLAN FOR ADAPTATION AT THE BASIN LEVEL

Successful adaptation planning to address growing water scarcity and quality issues requires river basin management planning that prioritises participatory processes, regional political anchoring, and trust-building mechanisms reflective of local priorities and power dynamics.

Adaptation to climate change is a major concern in countries and regions where scarcity challenges already exist and requires approaches that consider the interrelationships among all components of the basin.

Engaging diverse stakeholders for effective water governance within a basin relies on building trust and fostering cooperation, with interpersonal relations frequently key to breaking through stalemates and reaching consensus. [Rugel](#) shows how this worked in the Canterbury Water Management Strategy in Aotearoa (New Zealand), which engaged the Indigenous Ngāi Tahu community and a range of water users, and where interpersonal and informal interactions led to strengthening trust and cooperation that helped to reduce water quality issues in the region.

Building trust through existing mechanisms on a transboundary scale means leveraging existing political and economic frameworks to engage stakeholders. [Yasuda et al.](#) identify key enablers for regional dialogues—including balancing stakeholder roles, using regional political processes, thematic anchoring, and sustainable finance—to create neutral spaces for cooperation in shared water basins.

ADAPTATION PLANNING MUST STRENGTHEN INSTITUTIONAL CAPACITY AND SECURE FINANCIAL BACKING WHILE ENGAGING STAKEHOLDERS

Strengthening institutional capacity, especially through hiring technical experts and promoting open data policies, is essential for managing transboundary surface and groundwater resources. [Sterckx et al.](#) propose practical solutions such as engaging hydrogeologists and adopting open data policies to address capacity gaps in regional groundwater management organisations, particularly in sub-Saharan Africa.

Planning in an integrated manner can improve access to financing in a transboundary basin. As [Poncin et al.](#) note, investments that link institutional capacity with clear planning frameworks are critical to the sustained implementation of basin management plans, as demonstrated by the OMVG (Gambia River Basin Organisation) Master Plan in West Africa.





The future of water security depends on strong basin governance.



HOW TO MOVE FORWARD: A CHECKLIST

- Prioritise strengthening basin-level institutions, particularly in transboundary contexts where cooperation remains limited.
- Adopt tailored institutional frameworks that integrate groundwater and surface water management—supported by sustained investment in technical expertise, innovation, and open data systems.
- Reflect local priorities and power dynamics, ensuring inclusive governance processes that elevate Indigenous and community voices.
- Build regionally anchored mechanisms of trust and collaboration, key to managing shared resources amid growing uncertainty.
- Rely on planning as a key tool for making real changes within sectoral policies
- Ensure sustainable financing.
- Account for non-conventional (green and grey) water resources in IWRM.

A FINAL THOUGHT: FILL THE GAPS

Integrated water resources management at the basin level is now widely recognised as an adaptive framework for addressing today's complex water challenges. Yet implementation remains uneven, particularly in transboundary basins, due to gaps in political commitment, financing, and institutional capacity.



As pressures mount from climate change, population growth, and ecosystem degradation, stronger, more inclusive governance structures and better integration of data, local knowledge, and stakeholder participation are urgently needed to deliver on the promise of sustainable water management.

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