



Bridging science and policy through law

KEY POLICY MESSAGES

- Evidence-based legal reform builds bridges between science and policy.
- Evolving priorities necessitate adaptive, flexible laws.
- Legal rights must, and increasingly do, extend to basic human needs, environment and indigenous practice.

■ Arizona
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Water does not stand still, literally or legally. Water is increasingly regarded as a public property good under government jurisdiction, with increased recognition of basic human and environmental rights to water.

LAWS SHOULD GO WITH THE FLOW

Contemporary laws to manage this precious resource are increasingly adaptable to reflect not only ever-changing rainfall and river flow patterns, but also advances in scientific knowledge and evolving economic, social, and environmental circumstances.

Legal developments reviewed in the light of experience and new legislation from selected countries confirm earlier stocktakings. Advances are apparent in more adaptable allocation mechanisms; better blending allocation efficiency and equity; 'greening' water laws; bridging the land use–water divide; and giving customary water rights their due.

PEOPLE AND RIVERS GAIN LEGAL PRIMACY

More and more statutes are tasking water to meet basic human needs as a human right. An example is Zambia's Water Act 2011, where the human right to water is a matter of policy and principle prioritizing households and non-commercial uses over other competing demands. In Ecuador, human rights extend to setting aside quality water for future generations.

Environmental legal rights to water are emerging with the same features and protections as legal entitlements to water for human use. Environmental entitlements recognise that rivers, lakes and wetlands need a legally protected water share to maintain ecological health and ecosystem functions.

Several nations, including New Zealand, India and Colombia, have gone a step further, giving rivers equal legal rights with people on the scale of social values and interests protected by law.

Water rights and licences are also being made more flexible. Water Acts in Ecuador, Tanzania and Namibia, for example, give authorities the power to review and adjust, downwards if necessary, permitted extraction volumes in response to drought, with or without compensation.



WATER RIGHTS MUST KEEP UP WITH THE TIMES

Canadian provincial authorities can use administrative orders, including amending water entitlements, to deal with changing conditions such as droughts and overallocation. However, decisions are rarely based on good scientific information and ecological monitoring. Nor does the provincial licensing system take account of indigenous rights.

In 2016, the Environmental Appeal Board in British Columbia overturned a water licence issued for hydraulic fracturing because it was "not supported by scientific precedence, appropriate modelling or adequate field data", and consultation with the affected First Nation was poor.

The case highlights how water law reform must also enable environmental planning, assessment of cumulative effects and monitoring at the basin scale, and recognize indigenous rights.



■ Ecuador
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SCIENCE PROVIDES THE LEGAL EVIDENCE BASE

Science plays an essential role in informing legal reform. At the same time, legal frameworks provide the tools to better link science and policy. Bridging the science and policy divide through the law is an important way to implement science-based policy decisions.

Scientific planning and monitoring are key to water laws maturing into adaptive frameworks. They outline the role of law in water management and suggest solutions to make laws flexible and adaptive to changes in scientific knowledge and environmental, social and economic conditions.

LAW ENFORCEMENT SLOWS URBAN SPRAWL

A building boom and property speculation drove decades of unsustainable growth in Spain, leading to overexploitation and severe water scarcity in some regions, compounded by climate change. In 1999, the Spanish Government introduced a requirement for local authorities to prove urban development plans were based on sufficient water availability. Scientists and engineers collaborated with legal staff to prepare water sustainability reports, but they did little to stem the urban growth tide.

Finally, the Spanish High Court in 2015 mandated that new residential and industrial developments not be approved without proof that enough water was available. The Spanish experience underlines how sustainable development depends on integrating water availability into planning processes.

WHEN FISH MEET HYDROPOWER, CAN BOTH WIN?

For the most part of the 20th century, Finnish water policy and law favored allocating water to generate electricity. Allocating water for any other purpose was considered frivolous and vain.

However, new scientific knowledge is catching up with the law since most hydropower permits were issued between the 1930s and 1970s. Migratory salmonids are today endangered due to damming and hydropower production, forcing a rethink of Finland's legal priorities.

Legal and policy developments at national, EU and international levels have sought to balance social and ecological uses of environmental flows. The EU Water Framework Directive imposes significant pressure to review hydropower permits to include compensation (fishways, fish transfers, restocking).



A REFORM AGENDA

● Reconcile uncertainty and security of water resources

Security of extraction and use, sought notably by investors, needs to be reconciled with advances of scientific knowledge, particularly climate variability. For example, in Australia, allocations under a forest water permit can only be changed after the trees are harvested. This provides certainty for forest managers who must plan years ahead and cannot freely modify water use.

● Make efficiency gains without neglecting equity

Allocation efficiency demands priority attention, through laws facilitating water trade and wastewater disposal, rewarding efficient use, and charging extraction fees. But contemporary laws indicate efficiency tends not to come at the expense of social and environmental equity.

Trade limits protect third-party interests and environmental, amenity and cultural values. Small abstractions exempted from licensing requirements and regulatory controls carry implicitly strong equity undertones – although they can also be deprived of formal legal protections.

● Reposition water at the centre of the ecosystem

Environmental imperatives increasingly compete for statutory standing with development needs. This ‘greening’ of water laws can be painful and costly, as it may involve adjusting water extraction rights and trigger compensation. Experience in the US Western states and in Australia suggests these problems can be alleviated by allowing the market to step in and effectively substitute, albeit not entirely, for government command and control.

● Connect water and land-use regulations and their administration

Contemporary mainstream water legislation is increasingly aware of how land-use affects surface and groundwater. In particular, legislation coordinating water management with town and country planning across government will gain traction.

● Defuse conflict between customary and statutory water rights

Customary systems governing small water uses, mostly in the rural and peri-urban areas of developing countries, have attracted, at best, benign mainstream legal neglect. Yet, as competition for water heightens, customary rights are bound to come under pressure from investors.

Considerable legal innovation is already being displayed. Certain mechanisms hold much promise, such as the inalienability of custom-based rights, their immunity to forfeiture, priority allocation status and taking account of customary rights in deciding whether to grant new formal permits.

● Enforce the human right to water

Access to raw water to satisfy basic human needs – separate from but complementary to drinking water at the tap – has made its way into some countries’ constitutional charters and mainstream water law and/or policy. How the right is enforced remains an open issue, however.

● Improve access to justice

Improving access to justice and simplifying dispute resolution through community-level processes and alternative mechanisms are clearly emerging trends. Access to justice does not bypass courts of law; rather, the emerging trend attests to lawmakers’ willingness to resolve disputes with minimum disruption and expense to the litigants.

REFERENCES

From: *Water International*. International Association for Water Law Special Issue: Legal perspectives on bridging science and policy, Vol. 44, No. 3, April 2019, www.tandfonline.com/toc/rwin20/44/3

Mara Tignino, Raya Marina Stephan, Renée Martin-Nagle & Owen McIntyre. *Bridging science and policy: legal perspectives*.

Stefano Burchi. *The future of domestic water law: trends and developments revisited, and where reform is headed*.

Deborah Curran. *The adaptation potential of water law in Canada: changing existing water use entitlements*.

Roberto O. Bustillo Bolado & Laura Movilla Pateiro. *Proof of sufficient water resources as a prerequisite for the authorization of new urban developments: the Spanish model*.

Mauricio Herrera, Cristian Candia, Diego Rivera, Douglas Aitken, Daniel Briebe, Camila Boettiger, Guillermo Donoso & Alex Godoy-Faúndez. *Understanding water disputes in Chile with text and data mining tools*.

Niko Soininen, Antti Belinskij, Anssi Vainikka & Hannu Huuskonen. *Bringing back ecological flows: migratory fish, hydropower and legal maladaptivity in the governance of Finnish rivers*.

Andrés Martínez Moscoso & Rhett Larson. *Forestry management and water law: comparing Ecuador and Arizona*.

Eric L. Garner. *Factors identifying aquifers with a high probability of management success*.

Elena Quadri. *The evolving framework for transboundary cooperation in the Nubian Sandstone Aquifer System*.

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