Bridging science and policy: legal perspectives

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EDITORS’ INTRODUCTION

Bridging science and policy: legal perspectives

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Science plays a significant role in policy decisions related to the management and protection of water resources, at both national and transboundary levels. Legal frameworks provide analytical tools to develop the linkages between science and policy and to implement science-based policies and decisions. Law and policy play prominent roles in the integration of scientific knowledge within society. However, the interrelation between law, science and policy is complex and multifaceted and pulls in two directions: importing law into science and policy while exporting science’s approaches and methods to law and policy.

This volume of \textit{Water International} represents the third special issue prepared by the International Association for Water Law (known as AIDA from its Spanish acronym; \url{https://www.aida-waterlaw.org}). AIDA is a network of legal and policy specialists active in government, academia and civil society who have a specific interest in freshwater resources law and related disciplines. It partners with a variety of inter-governmental, governmental and non-governmental institutions to ensure that water law is properly integrated in the governance of freshwater throughout the world.

Consistent with the two previous AIDA special issues (37:6, 2012, and 41:6, 2016), this volume gathers selected papers dealing with law and governance presented at the IWRA’s 16th World Water Congress, held in Cancun in 2017. AIDA has played an active role as a contributor to the development of this congress by leading the delivery of the water law and governance track running through the programme, soliciting presentations from high-level legal experts, and organizing a special session on the Greening of Water Law. AIDA volunteered to have the present guest editors review the diverse submissions and identify those legal papers that were of particular significance for this special issue.

The articles selected and published in this volume deal with legal aspects of water management addressing the conference theme of ‘Bridging Science and Policy’. 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. Each contribution addresses the topic with a different focus and offers an in-depth analysis of legal challenges related to the creation of interdisciplinary...
bridges. Together, this assemblage clarifies how science may be assimilated into decision-making processes and can thereby contribute to build evidence-based policies.

Burchi opens the issue with an exploration of the latest trends in the development of domestic water law through analyzing the evolving legal frameworks of countries representing different regions of the world and diverse legal systems. The trends that emerge include novel considerations in water laws, such as the emerging role of the environment, greater attention to the impacts of land-based activities on water quality and on the natural processes of water-retention, and concerns about providing proper recognition of the custom-based rights and practices of traditional and native communities. The author further identifies recently emerging trends, including the human right to water, the recognition of legal personalities in rivers, and the promotion of alternative dispute-resolution mechanisms to facilitate access to justice in water disputes.

This overview sets the scene for three papers dealing with legal aspects of water management at the national level. Looking at Canada, Curran examines the ability of provincial water laws, predicated largely on an abundance of water, to adapt to changing hydrologic conditions when there is no longer enough water to secure all water entitlements. The author notes that administrative orders regarding allocation are becoming increasingly common due to low flows or over-allocations, particularly in the west of the country. After analyzing the context of water law in Canada and of the existing legislative basis for adapting water entitlements, the author concludes that water law reform must enable planning, assessment of cumulative effects and monitoring at the basin scale, and must also include recognition of the Aboriginal rights to water.

Herrera et al. consider water disputes in Chile, where water management and allocation are based on a free-market approach and strong neoliberal influence in tradable water rights. In their paper, the authors provide a multidimensional study of adjudicated disputes involving water rights in Chile. The study shows a substantial increase of legal disputes regarding water rights, as well as clear patterns of geographic locations for these conflicts, and legal arguments and strategies used in their pursuit. The authors found also an increased diversification of the subjects contained in the legal claims over time, which suggests an augmentation in their complexity.

Bolado and Pateiro explain how water considerations affect Spanish urban planning. After decades of unsustainable growth based on property speculation and rampant construction, legislative and judicial interventions have recently mandated that proof of the existence of sufficient water resources to fulfil the estimated needs of any urban planning (new residential areas, industrial zones, etc.) must be provided before authorization for those projects may be granted.

Groundwater resources require specific management considerations, especially when they are transboundary. Garner provides key information for improving the effectiveness of aquifer management efforts worldwide. He identifies and elaborates on the factors that have led to successful management of certain aquifers, such as the Genevese Aquifer in France and Switzerland, the Los Sotillos Aquifer in Spain, the Eastern Snake Plain Aquifer in Idaho, and a number of California basins. Quadri examines the evolution of the cooperation in the case of a single, yet extensive, transboundary aquifer system, the Nubian Sandstone Aquifer System, shared by Chad, Egypt, Libya and
Sudan. She notes the importance of procedural norms in this evolution and recommends increased reliance on substantive norms in order to reach a more mature level of cooperation based on the 2008 UN Draft Articles on the Law of Transboundary Aquifers.

The issue concludes with two papers dealing with the impacts of water management on two different aspects of biodiversity: migratory fish in Finland, and forests in Ecuador and Arizona. As described by Soininen et al., migratory salmonids in Finland are today an endangered species due to extensive damming and hydropower production. The authors analyze the principal legal and scientific drivers for re-evaluating some of the existing hydropower operations in Finland. They argue that there is a need for re-estimation on the basis of legal obligations deriving from EU legislation and new scientific knowledge. Moscoso and Larson compare public–private partnerships dedicated to improving forestry management to protect water in the Paute River basin in Ecuador (FONAPA) and the Verde River basin in Arizona (the Four Forest Restoration Initiative). Both programmes create incentives for improved forestry management and suggest lessons for water management in general. But synergistic learning between the programmes is inhibited by the differences in the legal status of water and forest resources in the two systems.

The guest editors hope that this collection will provide useful new information and insights and will open new areas of research on the role that law can play to bridge science and policy. We wish you good reading and invite you to consider adding your own contributions to the emerging issues raised here. We also hope fellow legal experts will join the next IWRA World Water Congress, in Daegu, Korea, 11–15 May 2020.