1. Introduction: water and the law – towards sustainability

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Tinariwen, a band of Tuareg musicians from the Sahara Desert region of northern Mali, named their 2007 album *Aman Iman*, which means ‘water is life’ in their language, Tamashek. It is hardly surprising that a group of nomads from the hottest and largest non-polar desert would regard water as so important, but it is trite that *aman iman* is true for everybody, not just desert-dwellers. The link between water and life is the basis of the defining question for exploration of Mars, for if there is evidence of liquid water, past or present, on Mars, then there exists the possibility of life.

Fortunately, for life on Earth, both human and otherwise, water is ample on our planet, although distributed unevenly. For many people, such as the Tuareg, life revolves around finding water, whereas people in other parts of the world deal with the problems posed by too much water, such as flooding. The bottom line, however, is that life on Earth needs water. Yet many commentators are providing warnings that our water is under threat. Although there are huge amounts of water on Earth, less than 3 per cent of that water is fresh, and most of that is relatively inaccessible to humans and most other living species that rely on it. The small amount of accessible fresh water, mainly in rivers and in the ground, is suffering from various serious threats.

In 2013, The Bonn Declaration on Global Water Security observed that:

After years of observations and a decade of integrative research convened under the Earth System Science Partnership (ESSP) and other initiatives, water scientists are more than ever convinced that fresh water systems across the planet are in a precarious state.

Mismanagement, overuse and climate change pose long-term threats to human well-being, and evaluating and responding to those threats constitutes a major challenge to water researchers and managers alike.

These worrying observations are not new. Twenty years ago, a leading expert on environmental and particularly water matters, Peter Gleick, was talking of a water crisis (Peter H. Gleick (ed.), *Water in Crisis: A Guide to the World’s Fresh Water Resources* (OUP, 1993)).

Water scarcity is the essence of this crisis. But Earth is a closed system and the water on Earth is part of the self-contained hydrological cycle, so we are not losing water. So why is water becoming scarce? As observed by Gro Harlem Brundtland in the ‘Foreword’ to *The Global Water Crisis: Addressing an Urgent Security Issue*, the reasons for water scarcity include:

- a rapidly growing population with associated changes in lifestyle and consumption patterns; competition between sectors, such as industry, agriculture and energy for precious land and water resources; inadequate access to water supply and sanitation services for what is now becoming known as the ‘bottom billion’ on this planet; the failure to adequately address the issue of indigenous water rights and include marginalized populations in water decision-making processes; matters related to environmental protection; and growing tension over transboundary water issues.

The IUCN Academy of Environmental Law convened its 2011 Colloquium in Mpekweni in South Africa, in order to consider these and related themes under the theme of ‘Water and the Law: Towards Sustainability’, which is also the title of this book. The challenges that humankind is facing in relation to the ‘water crisis’ are clearly not just to be faced by lawyers and the law, but law can provide a regulatory framework, both internationally and domestically, within which these problems can best be addressed.

The theme essentially has two thrusts. The first is how law can contribute to the sustainability of water itself, which is clearly critical. The second is as important – how the law’s regulation of water can
contribute to the sustainability of life generally, human life as well as life of other species as part of Earth’s environment.

The book is divided into three parts. Part I deals with international and transboundary water law. 2013 was declared by the United Nations as the International Year of Water Cooperation, and the UN’s reason for this was that:

Water, a vital resource unlike any other, knows no borders. For instance, 148 countries share at least one transboundary river basin. That’s why water cooperation is key to security, poverty eradication, social equity and gender equality. In addition, water cooperation generates economic benefits, preserves water resources, protects the environment and builds peace. As rapid urbanization, climate change and growing food needs put ever-increasing pressure on freshwater resources, the objective of the Year is to draw attention to the benefits of cooperation in water management.\(^1\)

The hydrological cycle does not respect human-made borders, which makes international cooperation in the management of shared (transboundary) water resources essential. This is the theme of the first chapter in this part, by Patricia Wouters, the keynote speaker at the Colloquium, entitled ‘Dynamic cooperation – The evolution of transboundary water cooperation’. This chapter was previously published in two parts in 2013, *Environmental Liability* 88 and 131.

Wouters observes that ‘cooperation is the bedrock of international law, prescribing limits on absolute State sovereignty in a myriad of ways’, and that the duty to cooperate, in the context of managing transboundary waters that are coming under increasing stress, is a critical underpinning for coherent management and development of the world’s water resources. She considers several case studies involving transboundary water resources and the interface between cooperation and sovereignty, within the context of existing international law. Her conclusion is that international law ‘has evolved, and continues to evolve, around the elastic concept of cooperation, a notion that is dynamic both in substantive content and procedural application’.

The problems associated with emphasis on sovereignty and shortcomings in cooperation are themes that permeate the next two chapters, both of which focus on the Nile, which appears to present some of the most intractable challenges for international water law, and particularly for cooperation in shared water management. In ‘International legal perspectives on the utilization of trans-boundary rivers: the case of the

Ethiopian Renaissance (Nile) Dam’, Habtamu Alebachew examines the conflict between upstream Ethiopia and downstream Egypt in relation to the construction of the new Renaissance Dam. He sketches how the tension between the two countries over the Nile’s water is nothing new, yet argues that the benefits of the dam will not only advantage Ethiopia but will also, contrary to Egypt’s concerns, present several positive results for Egypt.

Emmanuel Kasimbazi, in ‘The complexities of developing a transboundary water resources management agreement: experiences from the Nile Basin’, explains the complexities of developing a transboundary water resource agreement using the Nile as a case study. He sets out the historical reasons for lack of agreement as to the Nile’s waters between the ten Nile Basin countries, and focuses on the current (since 1997) initiative, the River Nile Cooperative Framework Agreement (CFA), outlining the difficulties in achieving full buy-in to the CFA and providing certain recommendations as to how to achieve consensus. He does concede, however, that it could ‘be difficult to develop a comprehensive Nile Basin agreement’, which is a sobering prognosis.

The fourth and final chapter in Part I deals with a resource that often plays second fiddle to surface water when it comes to academic (and other) attention – groundwater. Adrien Bodart’s chapter is entitled ‘Transboundary groundwater management: comparison between international law codification and EU water policy’. The chapter compares the International Law Commission’s draft articles on the law of transboundary aquifers and the European Union’s directives in this regard, concluding that there are many common features and that the points of comparison will be useful in developing international law dealing with groundwater.

Part II then moves from an international to a national focus, dealing with domestic water governance and integrated water resources management. According to the Global Water Project, ‘integrated water resources management’ (IWRM) is ‘a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems’.² IWRM, the current thinking behind innovative water governance, highlights the fact that water cannot be effectively managed or

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developed in a vacuum. Management approaches that focus merely on water resources are doomed to failure since they are unable to address actions on land (such as pollution by sewage, and run-off of fertilisers and pesticides) that contribute to poor water quality and consequently water scarcity. IWRM is, unsurprisingly, a prominent theme in the chapters making up this part.

Water scarcity, according to Brundtland in *The Global Water Crisis*, is not a natural phenomenon, but one caused by humans:

> the global water crisis [is] one of governance more so than a crisis of absolute water availability. We are not facing water scarcity so much as we are facing water governance issues. What we have learned from what is happening widely in the world is that the failure of governance with respect to water management is often a failure to integrate water management at different levels and to take local and regional approaches into consideration.

In other words, humans are the cause of the crisis. But, just as we are the cause of the problem, so too are we able to fix it, and various approaches to better water governance are provided in the chapters appearing in this part of the book.

The first chapter in this part (Chapter 6), by Douglas Fisher, examines governance of water through a jurisprudential lens. In ‘A jurisprudential model for sustainable water resources governance’, Fisher identifies a state of ‘doctrinal confusion’ in current water governance arrangements and rules, both national and international, particularly due to the necessity of ‘traditional’ water norms having to accommodate sustainability concerns. Following consideration of both international approaches and selected national case studies, he sketches a ‘coherent’ jurisprudential model that has sustainable use and development of water resources as the ‘fundamental principle and the cardinal rule for the management of water resources’. Fisher’s chapter was previously published in (2013) 23 *Journal of Water Law* 143.

The remaining chapters in this part consider water resources management in various national jurisdictions, either generally or in respect of particular water governance issues.

Trevor Daya-Winterbottom, in Chapter 7, ‘Sustainability, governance and water management in New Zealand’, reviews the law on restrictions relating to the taking and use of fresh water under the Resource Management Act of 1991. He identifies certain problems in the relevant jurisprudence and concludes that the current legislative framework (and the way in which it has been interpreted by the courts) ‘may be unworkable’ due to an ‘enduring policy vacuum’. The problems may be
addressed through a statutory reform process initiated in 2009 but seemingly now stalled.

The following chapter focuses more on the relationship between the riverine environment and the water resources themselves, in the context of Brazil. Mauricio Duarte dos Santos, Carolina Dutra, Vladimir Garcia Magalhães and José Carlos Loureiro da Silva, in ‘The protection of riparian forests and water resources conservation in Brazil’, remind us of the connection between riparian forests and water resource protection and the vital environmental services provided by riparian forests. They assess the role of the Brazilian Forest Code and the National Policy of Water Resources in this respect and critique the changes proposed by the New Forest Code with respect to riparian forests and water resource protection.

Chapter 9, entitled ‘Achieving ecologically sustainable development in multi-level water governance regimes: the case of the Murray–Darling Basin’, is by Ganesh Keremane, Jennifer McKay and Zhifang Wu. The authors raise the difficulties presented by multiple layers of government being simultaneously involved in water governance decision-making, in this case focusing on the development of the Murray–Darling Basin Plan and providing for ecologically sustainable development, as required by law. The suggested solution of ‘enhanced consultation processes and transparency’ is likely to find resonance in many other jurisdictions and contexts.

The next chapter, Chapter 10, moves to a country with far different water dynamics from those found in Australia. Niko Soininen, in ‘Weighing of interests in the Finnish Water Law – from financial evaluation to the normative weight of interests’, considers the challenges facing decision-makers in weighing up the relevant competing interests when making water permit decisions. Soininen develops a hierarchy of interests that enable them to be rationally compared, given the problems that arise when comparing interests that can readily be quantified in monetary terms and those (such as environmental interests) that are less amenable to such characterisation. This exercise is sure to be of interest not only in the study country, but in any jurisdiction where water allocation and/or water use decisions involve weighing considerations of a disparate nature.

Chapters 11 and 12 both explicitly raise one of the major threats to water governance – climate change. In ‘Water law: adapting to climate change in south-eastern Australia?’ Anita Foerster identifies the likely impacts of climate change on water resources and the challenges that this poses in the context of adaptation. She explores in her chapter how well
relatively new legal mechanisms and associated water governance structures support climate change adaptation imperatives in the context of water resource management in the Murray–Darling Basin. Her conclusion is that the law potentially does support climate change adaptation, subject to some fine-tuning, but that central to its effectiveness in this regard are the implementation and appropriate review, where necessary, of a ‘Sustainable Diversion Limit’. Once again, the significance of the issues raised in this chapter is unlikely to be relevant only to Australia.

Climate change is likely to have quite different impacts in the Netherlands, and its ramifications are considered by Marleen van Rijswick and Imelda Tappeiner in ‘Developing an institutional legal framework for sustainable regional water management in times of climate change’. This contribution sets out an analytical legal framework for the institutional design of regional and local water management in dealing with the impacts of climate change on water management. It explores the leading requirements for climate change and water management – that is, legitimacy, effectiveness and resilience – and sets out the institutional, legal, technical and economical instruments required for good water management as well as the leading requirements for good water governance. The authors apply this framework to the institutional model of regional water management in the Netherlands, a jurisdiction with a unique set of water problems, to illustrate how such an integrated assessment framework can best be adopted to manage the challenge of climate change.

The ‘new’ water law introduced in South Africa after the onset of the post-apartheid era was widely heralded as groundbreaking when it was introduced in 1998. Sixteen years later, there are still significant aspects of the law that are lacking effective (or, in some cases, any) implementation. Ramin Pejan, Derick du Toit and Sharon Pollard, in Chapter 13, entitled ‘Using progressive realization and reasonableness to evaluate implementation lags in the South African water management reform process’, focus on the established South African constitutional-law principles of ‘progressive realisation’ and ‘reasonableness’ in order to evaluate the implementation of IWRM in South Africa. Utilising complexity theory and systems approaches to evaluate progressive realisation and reasonableness, the authors conceptualise a framework that can be used to evaluate the implementation of IWRM. The key elements of the framework include having a vision; principles informing the vision; key strategic objectives and sub-objectives determined with stakeholders; actions needed to realise the sub-objectives; iterative development; and testing of indicators and benchmarks that include appropriate time-frames, implementation of actions, and evaluative cycle of monitoring,
reflection, learning and action. Whilst this framework is set against the South African context, the authors ultimately make the point that in working towards particular goals, practitioners (or institutions) must develop and apply a framework for themselves so that they can evaluate their own progress against legal obligations.

IWRM, a theme at the forefront of several of the chapters in Part II, entails as part of its objectives the provision of water for human consumption, at least in order to cater for basic human needs. This raises the issue of the right of access to water, an essential element of socio-economic rights and the theme of Part III of the book. There are two chapters in this part, with some common features. Nicola Lugaresi’s ‘The right to water and its misconceptions, between developed and developing countries’ is Chapter 14. He examines perspectives relating to the right of access to water in different countries, initially through the lens of controversies relating to privatisation of water in Italy, concluding that there is no ‘one-size-fits-all’ approach to ensuring that the right of access to water is achieved. This chapter raises the challenges relating to the cost of providing water and issues of how to pay for these costs, which are questions raised throughout the world, often controversial (see, for example, Peter H. Gleick, Gary Wolff, Elizabeth L. Chalecki and Rachel Reyes, *The New Economy of Water – The Risks and Benefits of Globalization and Privatization of Fresh Water* (Pacific Institute, 2002), and Joseph W. Dellapenna, ‘Climate disruption, the Washington consensus, and water law reform’ (2008) 81 *Temple LR* 383).

Lugaresi considers as an example of the difficulties in providing for the right to water the 2011 Botswanan case of *Matsipane Moselthanyane v The Attorney General*. This is the central focus of Alexander Paterson’s chapter, entitled ‘The endless struggle of indigenous peoples in protected areas – the Bushmen’s challenge for water rights in the Central Kalahari Game Reserve’. The analysis of the case ‘provides a vivid illustration of the challenges involved in practically realising indigenous peoples’ access and use rights to natural resources (in this case fresh water), particularly where these are situated within protected areas’. Paterson’s analysis incorporates a thorough evaluation of current trends in protected areas management and how these relate to access to water by indigenous peoples, and provides universal food for thought. It is worth noting that the author highlights the role of dignity and respect in relation to questions of access to water, which is also clearly not merely a consideration in Botswana.

In the different countries and scenarios considered in the book, there are several common themes, which is to be expected given water’s ubiquity and the fact that water does not respect political boundaries. It is
clear that current approaches to water governance embrace integrated water resources management and appreciation of the holistic nature of the hydrological cycle. In addition to the recognition of the nature of water, there is also an apparent need for addressing water concerns in a cooperative manner. Challenges remain in certain parts of the world in achieving such cooperation, but where it has been evident, progress has been made.

It is almost trite to observe that the numerous and complex issues that may potentially arise in respect of water governance – ensuring water that is sufficient in quality and quantity for all human and environmental needs – have not been comprehensively covered in this book. Numerous volumes would be necessary for that, even if it were a feasible task. It is hoped that the chapters collected here raise most of the important questions and provide answers that provide food for thought and further investigation into facing the water challenges of the 21st century.