As this book clearly illustrates, the regulation of rivers within federations presents a set of unique challenges. Federalism, with government power shared between the national government and provincial (sub-national) governments, potentially adds a layer of complexity to water resource management. Where rivers flow through more than one province, tensions can develop between the national and provincial governments, and also between two or more provincial governments, as to the way in which those waters are regulated.

This edited collection is the product of a workshop hosted at the University of Oxford in 2012, bringing together experts on water policy and reform from the Americas, Asia, Africa, Europe and Australia. The chapters in this collection provide a series of case studies examining water resource management in ten countries, which provides breadth to this collection. Each chapter then provides great depth and detail of the water policy and political system of the country that it examines.

The book is divided into 21 chapters. The 17 case studies, which include basin-specific studies and country-wide studies, are bookended by two introductory chapters and two concluding chapters. These opening and concluding chapters identify some of the themes that flow through the case studies. In doing so, these chapters demonstrate that some of the challenges faced in regulating rivers in countries with a federal system of government are common across a number of countries. However, each federation, with its own constitutional framework, will also have its own unique challenges.

In Chapter 1 the editors (D. Garrick, G. Anderson, D. Connell and J. Pittock) provide an overview of water governance challenges in federal systems and identify two themes that permeate the case studies: first, ‘the increasing need for integrated water resource management and water security in federal rivers’; second, ‘the capacity of federal water management arrangements to respond to these needs’ (Garrick et al., 2014, p. 5). Chapter 2 (J. Pittock) identifies a further challenge for the managing of federal rivers: climate change. It is explained that changes in climate will ultimately affect the hydrology.

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within a river basin and it will be necessary for those managing those basins to adapt their management practices.

Chapters 3–8 are a series of case studies focusing on federations in the Americas. Chapter 3 (A. K. Gerlak) examines federalism and water policy in the United States. The chapter provides a historical analysis of US water policy commencing in the late 1700s through to present day and identifies five ‘streams’ of US water policy through history. Chapter 4 (E. Schlager and T. Heikkila) focuses largely on the challenges that have been faced in the western United States in resolving conflict through the use of interstate compacts and considers how these governing systems might adapt to future challenges, such as climate change. Chapter 5 (J. O. Saunders) examines water management in Canada. The chapter provides a helpful explanation of the constitutional context for water management in Canada, which is ‘highly decentralized’. It is an interesting contrast to, for example, the Australian position, where the national government has taken an active role in the management of federal rivers. Chapter 6 (T. Horbulyk) is a case study of the resilience of river basin governance institutions in the Saskatchewan River Basin in Western Canada that explains that the federal-provincial agreements do not adequately address the challenges associated with future water scarcity or nutrient loadings. Chapter 7 (E. Barrios) entitled ‘Water management and ecosystems: a new framework in Mexico’ explains the development of a project focusing on ensuring sufficient water for the environment (‘environmental flows’), a concept not unique to water resource management in Mexico. Chapter 8 (A. C. Coelho, B. Braga, R. Flecha, N. Freitas and O. F da Silva) identifies the main challenges and responses to federalism and water security in Brazil, including a case study focusing on the Doce River Basin.

Chapters 9 and 10 consider water resource management in Spain. Chapter 9 (J. Albiac, E. Calvo and E. Esteban) provides a description of river basin governance and policy in Spain. The chapter explains the importance of basin authorities in river basin governance and the role of stakeholder participation in that management process. Chapter 10 (E. López-Gunn and L. De Stefano) examines ‘how water security is defined and pursued over time across different scales; and how an ongoing decentralization process and the Europeanization of water management … is reshaping national water policy paradigms’. The chapter explains that water resource management in Spain is also shaped by the country’s membership of the European Union and the ‘superimposition of the European Union Water Framework Directive’.

Chapters 11 and 12 focus on South Africa. Chapter 11 (M. Muller) explains the distribution of governmental powers and functions in South Africa and the way in which many water resource management functions have been administered at a national level. Chapter 12 (S. Pollard and D. du Toit) provides a more focused study on integrated water resource management in the eastern rivers of South Africa.

Chapters 13–15 deal with water management on the Subcontinent. Chapter 13 (R. Hooja) gives an overview of managing water within India’s federal framework and Chapter 14 (M. D. Kumar) is a detailed case study of the Narmada River Basin in India. The Narmada River case study demonstrates the need for interstate water sharing agreements to be able to adapt over time to address changing physical, climatic and socioeconomic conditions, a theme that is developed across a number of chapters in this book. Chapter 15 (S. Ahmad, K. Aziz and M. Kahan) examines inter-jurisdictional water

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1 Ibid 87.
2 Ibid 158.
3 Ibid 159.
management in Pakistan’s Indus Basin, ‘the world’s largest contiguous irrigation network managed under a federal arrangement’\textsuperscript{4}.

Chapters 16–18 are a series of case studies examining river basins in China. Chapter 16 (A. Silveira) focuses on water quality in the Pearl River Basin, Chapter 17 (K. Jian) explains the watershed management in the Tai Lake Basin and Chapter 18 discusses China’s federal river management, using the Han River as a case study. The three chapters provide a useful insight into the Chinese legal and political systems and water resource management within those systems.

The final case study, Chapter 19 (D. Connell) considers the Murray–Darling Basin in Australia. The chapter provides a historical overview of the tensions that have existed in regulating the waters of the Murray–Darling Basin and explains the impact of the Australian federal system on the development of policy relating to the Basin. The chapter also helpfully outlines the more recent reforms and the role of the national government in that process.

The concluding two chapters examine over-arching themes relevant to federal systems of government. Chapter 20 (C. Maganda and H. Koff) examines water security in cross-border regions and considers two research questions: first, what is the relationship between border water security and border human security regimes? Second, how do different federal structures impact cross-border human and water security?

The final chapter, Chapter 21 (G. Anderson), insightfully draws together some of the common themes that arise from the 17 case study chapters. The point is made in this chapter that the way in which the different constitutional regimes vest legislative power with respect to rivers in different levels of government varies significantly between countries. Anderson notes that neither the constitutions of the USA or Canada make reference to ‘water’ or ‘rivers’. It is also explained that in Australia, ‘section 100 of its Constitution explicitly prohibits the federal government from abridging reasonable state use of rivers for conservation or irrigation’\textsuperscript{5}. However, given the way in which the High Court of Australia has interpreted this section, precisely how much of a limit this places on the Australian federal government’s legislative power is open to question\textsuperscript{6}.

Prior to this book, the term ‘federal rivers’ was not a term widely used to describe rivers. However, to think of some rivers as ‘federal rivers’ highlights the unique challenge that the various ‘layers’ of government within federal systems face (and will no doubt continue to face) in regulating ‘federal rivers’. Helpfully, the editors not only use this term, but define federal river systems as ‘major basins within or shared by one of the world’s 28 federal countries’ (Garrick \textit{et al.}, 2014, p. 3) and develop it further in Chapter 1. In the Preface to this book the editors state that the goal of the edited collection is to ‘deliver a reference volume that will motivate further comparative research and exchange among policy-makers and practitioners’\textsuperscript{7}. The way in which the case studies develop the concept of ‘federal rivers’ will no doubt encourage further comparative research in this newly identified category of rivers.

\textsuperscript{4} Ibid 243.
\textsuperscript{5} Ibid 342.
\textsuperscript{6} The wording of section 100 of the Australian Constitution is such that it places a limit of the federal government’s legislative power with respect to trade and commerce (section 51(i)). As the law currently stands section 100 does not limit the federal government’s power when the national government is legislating with respect to another head of legislative power (for example, implementing a treaty): see \textit{Arnold v Minister Administering the Water Management Act} (2010) and \textit{Commonwealth v Tasmania} (1983).
\textsuperscript{7} Ibid xxii.
The structure of the book – dividing the case studies by continent – also reveals an important point: federal rivers are found on every inhabited continent and there is great diversity in the way in which they are managed (both from a legal and policy perspective).

While the focus of the book is on the development of integrated water resource management, the development of such policy cannot be devoid from the legal regime within which it operates. While this book briefly outlines the legal system and constitutional framework of each country considered, the book also illustrates that further legal analysis would inform the development of water policy. If a national or provincial government does not have a sense of what its existing legal ‘rights’ might be, it might be reluctant to engage in the development of policy for fear of harming its current legal position. Legal academics engaging in a comparative analysis of the concept of federalism and the regulation of federal rivers might find this book of assistance in providing useful background information to the jurisdictions examined.

This edited collection provides not only an overview of ‘existing’ water management practices across the countries surveyed, but tries to anticipate the ‘future’ challenges that might be faced. Climate change is one challenge that is identified throughout the book and is likely to be an issue that will require further examination in the years ahead.

This book on federal rivers fills a lacuna in the literature. There are many books examining river basin management and a few books that discuss transboundary water resources. However, texts examining transboundary resources have often considered both national and international bodies of water, and have not focused exclusively on federal rivers. As this book demonstrates, rivers within a federation present a set of unique challenges and are deserving of their own detailed examination.

This book will have wide appeal. It is a must-read text for all academics and practitioners or policymakers in water resource management. However the interdisciplinary nature of the book means it will have appeal to those conducting research in other fields, such as law, history or economics. Readers with an interest in issues such as climate change, energy or food security will also find this book has relevance to their work.

References

Commonwealth v Tasmania (1983) 158 CLR 1 (‘Tasmanian Dam Case’).