



Managing Water for Australia

The Social and Institutional Challenges

Karen Hussey and Stephen Dovers

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Foreword

Current water use in Australia is unsustainable in many areas. The challenges we face to manage our water resources on a truly sustainable basis are formidable. It is important not only to get the science right, but to ensure that the Australian community understands the aims and the processes to achieve sustainable water management so it can support and participate in making the difficult decisions about water management that face us as a nation.

To help meet this need, the conference *Delivering the National Water Initiative: Understanding the social and industry dimensions*, was hosted by Land & Water Australia and the National Water Commission together with The Australian National University and Academy of Social Sciences in Australia on 4–5 December 2006 at Parliament House, Canberra.

The National Water Initiative is the blueprint for implementing the most significant reforms to the management of Australian freshwater resources for more than a century, and the conference offered the opportunity to explore the challenges that brings. We are pleased to present this book to help build further links between research knowledge and the practical implementation of water reform.

This book brings together the 10 expert papers presented at the conference as a summary of existing social sciences research and knowledge and to stimulate deeper thinking about the implementation needs of the agreed water reform agenda of the National Water Initiative. Key areas are identified where further integrated, multi-disciplinary knowledge and analysis across the social sciences is necessary.

The current drought across much of the country, our acceptance of the challenges that climate change brings, and recognition of the over-allocation of Australia's water resources, highlights the timeliness of these papers on implementation challenges and opportunities.

A national \$10 billion plan to accelerate water reform and significantly improve water management was announced by the Australian Government in January 2007. The new plan is in large part underpinned by, and will significantly advance, the National Water Initiative's reforms. This book is now more pertinent than ever as it helps to bridge the gap between the words of the National Water Initiative and the actions needed to give effect to those words on the ground across nine jurisdictions.

Ken Matthews AO
Chief Executive Officer, National Water Commission

Dr Michael Robinson
Executive Director, Land & Water Australia

Contributors

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Kathleen Bowmer is Professor of Water Policy at Charles Sturt University and Honorary Research Fellow, CSIRO Land and Water. Professor Bowmer has worked extensively in the policy and regulatory sector in natural resource management in Australia for more than 30 years and was a winner of the 1994 Eureka Prize for Environmental Research, awarded by the Australian Museum.

Serena Chen is a PhD student in the Fenner School of Environment and Society at the Australian National University. She has a BSc (hons) from the ANU and is studying ecological function in riverine systems.

Daniel Connell is an environmental historian at the Crawford School of Economics and Government, Australian National University and the author of *Water Politics in the Murray-Darling Basin*. Based on his PhD undertaken at what is now the Fenner School of Environment and Society, Australian National University, his book assesses water management in the MDB against the National Water Initiative. It also tests the adequacy of the NWI against the challenges facing the MDB.

Stephen Dovers has interests in policy and institutional dimensions of sustainable development, and is Professor at the Fenner School of Environment and Society, Australian National University, and Adjunct Principal Research Fellow at Charles Darwin University. His latest book is *Environment and Sustainability Policy* (Federation Press, 2005).

Douglas E Fisher holds the degrees of MA, LLB and PhD from the University of Edinburgh. He is currently Professor of Law at Queensland University of Technology. He has had professional and academic experience in environmental resources law in three jurisdictions over 40 years.

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Geraldine Gentle is Director of URS Economics and Policy, and is an economist with extensive experience in microeconomic reform and natural resource management. Previously, she was Assistant Commissioner on the Productivity Commission, where she led many inquiries into complex economic, public policy, regulation and planning issues. She has also been Deputy Director-General of the Queensland Department of Natural Resources and Mines, and Commissioner of the Murray-Darling Basin Commission.

R Quentin Grafton is Research Director of the Crawford School of Economics and Government, Australian National University. He is listed in the Top 500 of the World's Economists (1994–1998), in the 2005 and 2006 Marquis editions *Who's Who in the World*, the Marquis 9th edition *Who's Who in Science and Engineering* and in the 33rd edition of the *Dictionary of International Biography* (in press). He has written over 50 journal articles, book chapters and several important texts in environmental economics, including *The Economics of the Environment and Natural Resources*.

Steve Hatfield-Dodds is an economist and policy analyst with CSIRO Sustainable Ecosystems. He has an extensive career in consulting and was Director of the Socio-Economic Integration Emerging Science initiative for CSIRO.

Karen Hussey is a Postdoctoral Fellow at the Research School of the Humanities, Australian National University, and Chair of the ANU Water Initiative – a transdisciplinary research and education initiative focused on water resource management. Her interests include environmental politics and economics, water policy and management, agri-environment policy (with a particular focus on international approaches) and global environmental governance.

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Tony Jakeman is Professor at the Fenner School of Environment and Society and Director of the Integrated Catchment Assessment and Management Centre, Australian National University, and has been an environmental modeller for 30 years with over 300 publications in the open literature. His interests include integrated assessment methods for water and associated land resource problems, as well as modelling of water supply and quality problems including in ungauged catchments.

Rebecca Letcher is a Fellow at the Australian National University and has contributed over 50 journal publications to the water resources literature. Her research interests relate to the development of approaches for integrated assessment of natural resource management issues. This includes development of integrated modelling approaches and frameworks, development and application of participatory approaches in modelling, and the design of decision support systems.

Joe Morrison is the executive officer of the North Australian Indigenous Land & Sea Management Alliance (NAILSMA) and an executive member of the Tropical Rivers and Coastal Knowledge (TRACK) Research Hub. NAILSMA has recently established an Indigenous Water Policy Group to increase Indigenous participation in northern water policy debates.

Chris Olszak is a Senior Economist at URS Australia, and has led numerous evaluations of Australian water projects. They include reviews of water allocation, infrastructure and system management, recycling, water-saving initiatives, environmental flows and other environmental actions. He recently advised the NSW Natural Resource Commission on reviewing water-sharing plans. In 2005, he worked in the Department of Water Resources Management in Vietnam where he led a USAID-funded investigation into the development of water allocation systems and the use of economic tools.

Deborah Peterson is an Assistant Commissioner at the Productivity Commission, heading the Environmental and Resource Economics Branch. Previously, she has held senior positions at the Australian Bureau of Agriculture and Resource Economics and at the Bureau of Industry Economics, and was President of the Australian Agricultural and Resource Economics Society in 2005. She is currently a Visiting Fellow at the Ecole Nationale Supérieure d'Agronomie de Montpellier in France.

Lisa Robins is a PhD student at the Centre for Resource and Environmental Studies, Australian National University, researching capacity-building measures for regional natural resource management. Principal of Robins Consulting since 1998, she has 17 years' experience in natural resource management, including coordinating the Dryland Regions Strategic Investigations & Education Program for the Murray-Darling Basin Commission (1998–2004) and leading the Catchment Team for the National Dryland Salinity Program (2003–2004). She was awarded the 2004–2005 Environmental Change Institute-Green College Teaching Fellowship, at Oxford University.

Kate Stoeckel is a Policy Officer in the Water Reform Group in the National Water Commission. Before joining the Commission in 2006, she was a legal advisor to an NGO in Cambodia on land reform and practised as a corporate lawyer in Canada and Hong Kong. She has economics and law degrees from the University of Sydney, and has undertaken a Masters in Laws specialising in natural resources and water law at the University of British Columbia, Canada.

Geoff Syme is Research Director, Society, Economy and Policy, CSIRO Land and Water. He has been researching social aspects of water policy for 30 years.

Mike Young holds a Research Chair in Water Economics and Management at Adelaide University and Adjunct Professorships at the University of New England and Charles Sturt University. A Fellow of the Academy of the Social Sciences in Australia, until recently he was Chief Research Scientist with CSIRO Land and Water. In 2003, he was awarded a centenary medal for outstanding service through environmental economics, and in 2005 he (with Jim McColl) was awarded the Land and Water Australia Eureka Prize for Water Research.

Introduction

Informing Australian water policy

When the well is dry, we know the Worth of Water.
(Benjamin Franklin, *Poor Richard's almanac*, 1745: 2)

In recent years, water planners have recognised a simple three-part sequence to characterise the developmental phases of water resources. The first phase applies to pre-industrial societies where water is regarded as a free gift and easily accessible. The second phase is distinguished by active water exploitation, the construction of dams for hydro-power and irrigation, and inter-basin transfers from better endowed regions to nearby dry regions. The final, mature phase has close to maximum attainable level of stream flow regulation in major river basins, the costs of further water resource development and management increase rapidly and attention turns to non-conventional techniques to enhance supply (Smith 2003: 53). For Australia, owing to our small population base and relatively short history of settlement, the arrival and recognition of the mature phase has been much more recent than for most countries. But the 1980s heralded a sea-change in water resources planning so that changes in water policy over the last two decades have, arguably, eclipsed that of the preceding 90 years.

The most recent development in Australia's water planning has been the launch of the National Water Initiative (NWI) in 2004, with a schedule of implementation to 2014. Agreed to by the Commonwealth and all state and territory governments, the NWI is the overarching policy framework guiding Australian water management. It reflects and significantly extends key policy reforms in Australia over the past two decades, and brings these together into one powerful agenda which incorporates, among other things, integrated catchment management, tradable water rights, full accounting of resources and use, regional water planning, and environmental allocations (see Chapter 1, this volume, for a detailed description). In this respect, the NWI, and the key elements and principles therein, reflect the modern idea of sustainability and Australia's commitment to ecologically sustainable development (ESD). ESD is not about environment, per se, but about an integrated policy agenda that is wider and deeper, incorporating the long term integration of social, ecological and economic imperatives, more precautionary approaches to the environment, including people in policy and management, and creating new institutions and processes.

Through the NWI, Australian government and major non-government interests have established agreed directions for water policy and management over coming decades. As a decade-long national policy framework, the NWI allows a longer term outlook than most other policy initiatives, and thus the ability to work through many remaining tensions and potential implementation difficulties. This is a significant opportunity, as the reform agenda the NWI sets out is indeed an ambitious and difficult one, and the magnitude of the task is only now beginning to be realised. Assumptions regarding implementation are being unsettled by realisations of significant deficits of capacity and knowledge. Having agreed to the policies outlined in the NWI, can those policies be achieved based on existing knowledge and institutional capacities? This book addresses the major challenges in implementing the NWI with particular focus on social sciences research and knowledge that can and should inform policy and decision making.

Common themes

The chapters in this book are the culmination of an ongoing process of development and negotiation comprising two main stages. First, Land & Water Australia (LWA) established a social

and institutional research agenda linked to implementation challenges defined in the NWI. This research agenda was subsequently published in summary format in *Water perspectives* (LWA 2005). Second, agreement was reached between LWA, the National Water Commission, The Australian National University and the Academy of the Social Sciences in Australia to pursue this agenda in greater detail and rigour via the commissioning of papers by leading Australian researchers, which were designed to bring together existing relevant knowledge and identify gaps. The range of disciplines covered include anthropology, history, sociology, government and policy areas, institutional and public administration, and cultural, economic and legal areas.

The participating researchers addressed ten research and knowledge areas that match policy implementation areas within the NWI, as well as some common themes and topics to guide analysis along comparable lines. Each chapter is written to a standardised format addressing the following:

- the nature of the policy implementation task, for example: creating and managing water markets, establishing comprehensive water plans, governing environmental flow allocations, etc.
- what we already know, or what knowledge we can quickly adapt, to support policy formulation, implementation and evaluation.
- what critical knowledge needs exist that will require targeted research and knowledge generation/transfer, to enable achievement of agreed national water policy goals fulfilling ecological, social and economic goals.

Interaction during the course of this project ensured dialogue between individual researchers and review of emerging analysis and conclusions. Two authors' workshops during the project provided opportunity for discussion prior to a two-day national conference in Parliament House, Canberra, which provided yet more opportunity for debate and distillation of the key challenges in implementing the NWI and, crucially, of how the social sciences might contribute. The book has a strong and constructive focus on the reform agenda for water policy, as enunciated in the NWI, but also considered in the context of previous, less coordinated reform.

It is evident that the challenges in implementing the NWI are many and exacerbated by Australia's federal system of government, the different systems of management in each of the States and Territories, the different sets of legal arrangements in each of the States and Territories and the limited capacity of the Commonwealth to deal with the management of water resources. The NWI contemplates a set of cross-jurisdictional related planning, regulatory and market arrangements but the juxtaposition of these three functions poses particular challenges for an integrated and coherent set of policy and legal arrangements. The NWI's focus on a nationally consistent approach to water planning, underpinned by the objective of water trading, will require a consistent and coherent legal framework across water resources as a whole in ways that are intrinsically enforceable as a matter of law. The need for a strong legal framework is similarly highlighted in relation to environmental water allocations.

A second theme emerging from the chapters is the need for more (and better) communication in the reform process and greater public involvement in policy and planning frameworks. The objectives of the NWI are ambitious, in many cases contentious, and not yet clearly understood by many people, so there is a very real need to bring the community along. Experience from reforms across a range of policy sectors, especially where resource rights are being revised, strongly suggest that the successful implementation of the NWI will depend on the communication of its underlying logic, objectives, anticipated impacts and decision-making

processes to key stakeholders, whether they be from industry or the community (Connor and Dovers 2004).

A related challenge is the need for greater research and training in the development of water plans and capacity building amongst water planners. As the primary conduit for the implementation of the NWI is regional and local government agencies, those agencies must in turn be provided with the necessary detail and know-how, including: design and implementation of planning and review processes, appropriate and effective participation; practical guidance on analysing trade-offs in water allocation and management, and how to manage the inevitable social issues arising from those trade-offs; and information and training on how to integrate better the objectives of water planning with other natural resource management goals. The role of the social sciences in providing that knowledge is manifest.

We should also note that, in almost all the chapters, a lack of scientific knowledge and data was highlighted as a substantial impediment to the successful implementation of the NWI. Perhaps a similar exercise focusing on knowledge gaps in the natural sciences might 'complete the picture' and facilitate further the implementation of agreed national water reforms.

As this book was going to press, intense discussion was taking place around Commonwealth proposals to take control of water policy responsibilities in the Murray-Darling Basin. However this issue of responsibility within the federal system resolves, the reform implementation tasks dealt with in this book remain. The chapters within offer a substantial, rigorous and highly topical contribution of knowledge to Australia's water resource management capacities.

Karen Hussey and Stephen Dovers