MAINSTREAMING ENVIRONMENTAL WATER Law and Practice

A one-day workshop in Melbourne, bringing together researchers and practitioners in environmental water law, policy and management

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Erin O’Donnell[[1]](#footnote-1) and Rebecca Nelson[[2]](#footnote-2)

# Introduction

Securing water for environmental purposes through law and policy has been a dominant theme of water management during the millennium drought in Australia. Now, the drought has broken. We are left with a set of law and policy tools that are adapted to different conditions, leading to several important questions: What relevance does environmental water have for law and policy in periods of “normal” rainfall? How can we “mainstream” environmental water in our water law and policy frameworks? Said differently, how can we treat the environment like a partner, rather than a victim, in our allocation and water management processes? Can we depend solely on the mechanisms that we developed to cope with drought, or do we need to take a fresh look at the place of environmental water in times of normal, or “flooding rains”?

These are new questions for water law and policy, which are yet to receive any significant discussion either at formal meetings or in the literature. The workshop addressed these questions in the context of cross-cutting themes relating water trade and markets, groundwater as well as surface water systems, and links between water and environmental law.

Melbourne Law School invited 31 academics and practitioners in environmental water law, policy and management, from the public, private and non-profit sectors. The workshop aimed to provide:

1. An overview of some of the interesting and emerging issues in environmental water law and policy;
2. A chance to discuss these issues with a relatively small but relatively diverse group of people engaged in environmental water law and practice; and
3. A networking opportunity for all attendees, to build on existing networks and encourage the formation of an environmental water law and policy network.

To encourage frank discussion, the workshop used the Chatham House Rule, under which participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s) may be revealed. Although a summary of the presentations and discussions is provided in this report, none of this material should be considered as attributed to any particular speaker. The views presented in this report are not necessarily those of any particular individuals present on the day.

## Topics and speakers

Professor Michael Crommelin, Director of CREEL opened the workshop and provided the closing remarks. The sessions were chaired by Erin O’Donnell, a CREEL Senior Fellow and Rebecca Nelson, a visiting Research Fellow.

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| --- | --- | --- |
| **Topic** | **Key speaker** | **Panelists** |
| What institutional mechanisms and legal status can we, and should we, provide for environmental water as a “partner” in water use? | Ben Docker | Moya Tomlinson  Daniel Connell |
| How can, and how should, the environment fit within “mainstream” water law and policy mechanisms? | Garry Smith | Graeme Enders  Lin Crase |
| What special legal issues arise for the use of environmental water in times of “flood” (natural or artificial)? | David Dreverman | Geoff Earl  Jane Doolan |
| How do environmental conservation laws interact with environmental aspects of water laws? | Alex Gardner | Brendan Sydes |

## Format

The workshop was designed to share information across different sectors and to stimulate discussion between participants from different states, sectors and backgrounds. Four discussion papers were prepared and circulated prior to the workshop (see Appendix). To commence each discussion session, the authors of these papers gave opening presentations, which were followed by brief responses from two key panelists, before the floor was opened for broader discussion. In this way, the bulk of the time on each topic was spent in conversation and discussion between the workshop participants.

# Workshop Participants

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| Arlene Buchan | Australian Conservation Foundation |
| Daniel Connell | Australian National University |
| Lin Crase | La Trobe University |
| Ben Docker | Commonwealth Environmental Water Office |
| Paulo Lay | Department of Environment and Primary Industries, Victoria |
| Diane Cotterell | Department of Environment and Primary Industries, Victoria |
| Jenny Scovell | Department of Environment and Primary Industries, Victoria |
| Garry Smith | DG Consulting |
| Brendan Sydes | Environment Defender's Office, Victoria |
| Geoff Earl | Goulburn-Broken Catchment Management Authority |
| Phillip Wallis | Monash University |
| Barry Hart | Monash University |
| David Dreverman | Murray-Darling Basin Authority |
| Deb Nias | Murray-Darling Wetlands |
| Graeme Enders | Office of Environment and Heritage, NSW |
| Moya Tomlinson | Department of the Environment, Commonwealth |
| Jason Alexandra | Alexandra and Associates |
| Avril Horne | SKM/Jacobs |
| Rebecca Nelson | Stanford University / University of Sydney |
| Erin O'Donnell | University of Melbourne |
| Lee Godden | University of Melbourne |
| Emily O'Connell | University of Melbourne |
| Michael Crommelin | University of Melbourne |
| Tim Baxter | University of Melbourne |
| Anita Foerster | University of Tasmania |
| Jane Doolan | University of Canberra |
| Alex Gardner | University of Western Australia |
| Denis Flett | Victorian Environmental Water Holder |
| Courtney Johnson | Victorian Environmental Water Holder |
| Neil Byron | Wentworth Group |
| Carley Bartlett | Wentworth Group |

# Topic 1: What institutional mechanisms and legal status can we, and should we, provide for environmental water as a “partner” in water use?

Presentation by Dr Ben Docker, Director, Environmental Water Policy, Commonwealth Environmental Water Office

Environmental water holders emerged in response to the needs of the environment for a larger share of the available water resources, as well as the need for more flexible water entitlements that can be actively used in a variety of ways to efficiently meet environmental demands. Ben’s presentation highlighted the evolving nature of these new institutions, which bring a clearer basis of the legal right water, greater independence from political processes and greater capacity for targeted water use. However, these benefits come with associated costs: such entitlements are expensive, with ongoing charges. Targeted water use can increase the losses associated with the delivery and use of the water. And there remains uncertainty as to the appropriate level of parliamentary control, given the nature of environmental water as a public asset. In addition to these opportunities and constraints, environmental water holders generally hold what were designed as irrigation water entitlements, and operate with a water system that was designed for other users. New uses of water and ways of using water bring challenges for both the environmental water holders and the river operators.

Environmental water holders are now the single largest holders of water, and the single largest customers for water managers and river operators. For the first time, this places the environment at the table of decision-making: environmental advocacy can proceed from inside the tent of river operations. The size of these entities also creates uncertainty in the existing customer base. The Commonwealth Environmental Water Holder is seeking to manage its trade and river operations so that it does not adversely affect other users.

Long-term agreements for use of the Commonwealth Environmental Water Holder’s water are emerging across the Murray-Darling Basin, but there is unlikely to be a single best approach. Successful environmental watering will depend on context-specific responses and careful management of the relationship dynamics between different water users.

Ben’s presentation generated a wide-ranging discussion. Of particular interest are the following four key issues:

1. The tension between the mechanisms used to recover environmental water and the ongoing rationale for its provision
   1. In the late 1990s, the focus of this debate was on providing for sustainable ecosystems first, and water that was left-over went to other consumptive uses. Now there has been a shift, and left-over water is what is provided for the environment. This approach has been exacerbated by the focus on assets and the loss of systems thinking.
   2. Despite this shift, for the first time we have achieved success in getting water for the environment and in using substantial amounts of public funds to do so.
   3. However, this shift creates a future vulnerability. How do we continue to defend allocation of water to the environment? There is a tension between the mechanisms we have used, including water markets, to recover water for the environment, and the ongoing need for a rationale to support the provision and use of environmental water.
2. Providing certainty for the present without compromising flexibility in the future, for all water users.
   1. There is a real need for legal research into the type of new and existing water entitlements we might need to expand future management options.
   2. Water markets demand certainty of operation and title to water rights; however, markets are tools to achieve efficiency, not an end in themselves.
   3. Institutional frameworks need the capacity to evolve, and communities need to be better engaged with the creation of policies for their water resource management.
3. Groundwater remains a real gap in environmental water holdings, and is likely to require a very different systemic approach to that used to provide environmental water in surface water systems.
4. Future roles and responsibilities for the environmental water holders
   1. There is a real need for change to the nature of water delivery services to better accommodate environmental water requirements.
   2. Environmental water holders operate through partnerships with local landholders, catchment management authorities and NGOs to achieve ecological outcomes with their water. Simply holding the water will never be enough.
   3. Yet, environmental water holders must be accountable for achieving environmental outcomes with their water. There is likely to be more pressure on accountability, transparency and issues of parliamentary control as the environmental water holders grow their holdings, deliver more water and make more use of the market.

# Topic 2: How can, and how should, the environment fit within “mainstream” water law and policy mechanisms?

Presentation by Garry Smith, Director, DG Consulting

An implication of the advent of institutions to provide for environmental water is the way in which the environment, as a user of water, fits within the concepts and mechanisms that water law and policy have developed to accommodate the needs of “traditional” water users. This issue manifests through ideas of the environment as a “legitimate” user of water, arrangements for the environment to access delivery infrastructure, participate in markets, and act as a “customer” of water corporations as well as potentially a beneficiary of directions to water utilities to protect the environment.

Garry Smith’s presentation pointed out that the environment has specific needs and requires tailored solutions to these needs, which may be of limited application to others. In seeking to meet these needs, the challenge is to identify the high-level guiding principles which have shaped the current water management arrangements and apply those same principles to meeting environmental water delivery needs. This may see new arrangements emerge for the environment. Where different high-level guiding principles are applied to the environment, then equity between water users suggests that a clear, defensible rationale should support the position. In addition, Garry argued that meeting the needs of the environment must not generate unacceptable impacts on existing users.

This presentation generated discussion in four key areas.

1. The participation of the environment in water markets.
   1. While water markets have been used to gain environmental water through buy-backs, they continue to be important to the environment as an ongoing management tool.
   2. The environment uses water trading to achieve similar ends to other users, namely to increase the value of water and adapt to changing conditions.
   3. However, trading of environmental water is subject to special concerns. These include rules restricting trading for the purpose of improving environmental outcomes, and concerns about the desirability of limiting the environment’s capacity to trade in times of water scarcity. Restrictions should be considered carefully to ensure the capacity to adapt.
2. Costs associated with environmental water.
   1. There is a lack of consensus on who should pay for the public good environmental benefits that the use of environmental water provides, and how to deal with the externalities occasioned by the use of environmental water—positive and negative.
   2. There is a particular need to highlight positive externalities, for example, reduced groundwater pumping costs that result from higher water levels. These can act as a valuable communications tool to generate support for environmental water.
   3. Time and measurability are complicating factors: positive externalities (benefits) accrue over the long term and can be difficult to measure, whereas negative externalities (adverse impacts) occur in the short term and typically take an economic form that is easy to measure.
3. Water accounting, delivery, and third party impacts.
   1. The way in which the third party impacts of delivering environmental water are conceived, and the difficulty of measuring and accounting for environmental water use and return flows, presented as key issues.
   2. Protections for third party water users in the context of environmental water use are analogous to, and as justifiable as, heavy protections for existing use rights in the context of urban planning.
4. Reflections upon concepts of the environment as a water user, prompting questions about the nature and future roles of other categories of water users.
   1. Key issues surrounding the irrigation industry are rarely discussed. These include aspirations for the industry, particularly in the context of reduced participation as a reduced volume of water is available for irrigation purposes; and the extent to which historical government subsidies to the industry should continue.
   2. Ongoing discussion is needed about indigenous uses of water, which challenge and expand the existing, often two-dimensional discussion about water, beyond assets and extraction, to specific places, values, and heritage. This discussion occurs against the background of constraints to the recognition of native title to water. There is particular need to include discussion of groundwater in the context of indigenous water uses.
   3. Recreational, social and cultural uses of water (understood in a general sense), tend to be under-considered. As a result, mechanisms for providing environmental water are often under pressure to deliver these broader outcomes, which may be in tension with ecological outcomes.
   4. Overall, discussions about environmental water would benefit from a return to previous framings, which posed the larger public policy question of what we want, rather than narrower debates that take existing status quo arrangements as a given.

# Topic 3: What special legal issues arise for the use of environmental water in times of “flood” (natural or artificial)?

Presentation by David Dreverman, Executive Director, River Management, Murray-Darling Basin Authority

While key law and policy innovations relating to environmental water have developed during drought, special issues arise for the use of environmental water in times of flood. These issues tend to have been overlooked by academic and popular debates. These issues include access to land for flooding flows, relaxing constraints on river operations to meet environmental needs, balancing competing uses for water in non-emergency times, the efficiency of “piggy-backing” environmental water on natural floods, counter-cyclical trading (selling environmental water during times of shortage and buying in times of abundance), carry-over and spills, monitoring environmental watering events, and adaptively managing provisions in water plans to change policy settings during times of abundant water.

David Dreverman’s presentation focused on the challenges that accompany meeting high river flow targets. Restoring historical floodplains—which are now used for other purposes—requires changing the hydrological regime to include high-flow environmental targets. Doing so creates a range of challenges for a variety of stakeholders, including current floodplain users, insurers and governments. Governments and river operators need to understand how floodplain landholders have adapted to changing river hydrology, which occurred progressively through the twentieth century as a result of dam construction and the use of stored water for irrigation. In particular, dam operators confront the issue of potential liability for impacts on downstream land and water users. Users of land that is inundated as a result of environmental water deliveries may lose revenue or the quiet enjoyment of their land, or lose access to it. Possible measures to address this include acquiring affected lands, acquiring flood easements, constructing levees to protect private lands and assets, and enhancing access facilities for affected landowners. Dealing with these issues will require better understanding existing powers and obligations, and amending state water legislation and the Murray-Darling Basin Agreement to introduce stronger uniform indemnities for river operators, in combination with implementing voluntary land-related measures.

This presentation generated discussion in three key areas.

1. The legal and political complexity and variety of risks involved in delivering environmental water so as to create high flow events.
   1. Key legal issues involve liability, indemnities for river operators, the possibility of injunctions against releasing water, and legal solutions that respond to these risks, such as easements and covenants.
   2. The flat topology of Australian rivers means that multiple months can separate the release of water from storage and a resulting potentially damaging downstream flood event. Risks can be difficult to assess due to intervening events (including natural events) in this time period, and it can be difficult to identify one particular action as responsible for damage.
   3. Related to this is the difficulty of determining the size of a flood that is determined to be material for the purposes of liability. For example, in some cases, delivering environmentally valuable flows would cause a lesser flood than one that would warrant a minor flood warning by the Bureau of Meteorology—but one that is nonetheless a flood capable of causing damage.
   4. In general, solutions to these issues will be politically favoured if they involve one-off capital funding and minimal recurrent funding. However, political factors obstruct the compulsory acquisition of easements to facilitate floods caused by environmental watering events. Voluntary acquisition strikes problems in the event of holdouts along the river.
2. The need to create land use planning regimes that facilitate, or do not obstruct, future developments in environmental watering that may cause floods.
   1. A policy of not intensifying development in those areas where we want to restore water will avoid exacerbating risks of creating damage through environmental watering.
   2. As an alternative, land at risk of flooding could be subject to a relevant covenant as a condition of subdivision.
3. Opportunities to reframe the issues and actors.
   1. Floods created for environmental purposes can be considered opportunities to use market mechanisms. Affected landholders could be paid for providing an ecosystem service, for example through US-style “conservation easements”. There is precedent in Victoria for similar action, involving buying, covenanting, then re-selling riparian properties. Similar schemes could extend to encouraging the voluntary removal of levees.
   2. Voluntary schemes could benefit from accompanying arrangements, such as a duty to negotiate in good faith and go to arbitration if necessary; or collective bargaining arrangements.
   3. Flooding can also cause benefits, for example, for floodplain graziers and recreational fishers. Constructing solutions would be facilitated by mobilizing these groups of beneficiaries.
   4. In addition to government action, environmental non-government organisations have significant scope for involvement in environmental water releases. Local NGOs can help to build trust and raise funds to restore local assets.

# Topic 4: How do environmental conservation laws interact with environmental aspects of water laws?

Presentation by Alex Gardner, Ass Prof, Faculty of Law, UWA   
(Michael Bennett, Research Assistant Professor, Faculty of Law, UWA)

Environmental conservation laws often require the use of water laws as part of the implementation of environmental protection. This issue becomes critical when the environmental asset is a water-dependent ecosystem. Alex Gardner’s paper considered the role and efficacy of water laws in providing protection to Australia’s Ramsar wetlands. These wetlands are protected under international treaties as well as under Australia’s own environmental legislation. However, without adequate support from water laws, and a water allocation framework that sets aside sufficient water to support the ecosystem function of these wetlands, environmental protection can be stymied. Alex’s presentation focused on the Ramsar-listed Forrestdale and Thomsons Lakes in Western Australia, and the interaction between environmental impact assessment legislation and water law and policy frameworks in Western Australia. Whilst the lakes in question are surface-water ecosystems, their water comes from groundwater sources. Western Australia relies heavily on groundwater supplies to meet its consumptive water needs. This presentation provided a review of the interaction between water and environment laws that raised issues common to water and environment practitioners around the country, but also required workshop participants to set aside the usual emphasis on surface water to consider the water allocation framework from the perspective of groundwater-dependent water systems.

This presentation generated discussion in three key areas.

1. The intersection between water law and conservation law.
   1. At present there is often a real disconnect between environmental laws and water laws. Different legislation and different legal regimes often do not intersect in a way that supports integrated management of ecosystems. There is a real need for better integration between these regimes.
   2. A lack of integration can give rise to mutually exclusive outcomes under environment or water law regimes. Real integration of environmental protection and water law requires acknowledgement of historical water use and current water rights. The issue of compensation for changing water access rights must be included in this discussion.
2. Ramsar listing, environmental values and dynamic systems.
   1. Environmental laws often use an impact based assessment system which can be ineffective at assessing cumulative impacts of current actions, such as water extraction.
   2. Ramsar listing refers to values identified at a location at a particular point in time. Sometimes this can result in a focus on ‘pristine’ pre-European settlement values; and on the other hand, it can also include values created by the historical operation of a system (such as keeping a lake fresh instead of saline). Whilst the values identified at the time of listing remain important, they must also be considered in the context of the system.
   3. The concept of ‘lakes on life support’ under climate change scenarios requires policy makers and lawyers to grapple with the changing nature of our environment, and when (and how) to adjust environmental values when it becomes clear that these values can no longer be maintained.
3. Groundwater systems and their specific challenges.
   1. The definition of wetland under the Ramsar guidelines is broad and could be extended to include aquifers, which must be considered as more than underground storage. Stygofauna communities are often diverse and highly localized, so each aquifer community is often unique.
   2. The concept of environmental water needs to be broadened to include groundwater systems. Rules-based water will be of greater importance in these systems, and enforcement of pumping rules will be critical.
   3. Where rules-based water is so critical, third-party enforcement becomes much more important. Groundwater systems could be the driver for extending standing rules within water law (which have traditionally been extremely limited).

The accompanying discussion paper available in the Appendix has since been published as:

Bennett, Michael and Alex Gardner, ‘How do environmental conservation laws interact with environmental aspects of water laws?’, *Environmental and Planning Law Journal* 31 (2014), 3-10.

# Workshop Outcomes

Environmental water law and practice is inherently multidisciplinary, multi-sectoral and operates across state borders. As the law and practice of environmental water management becomes part of the business-as-usual operation of water resource systems, it will present challenges that cut across specializations and require practitioners and researchers to reach out beyond their traditional fields. However, like many resource management and environmental questions, environmental water law and practice will continue to be controversial. Conversations across state borders, between policy makers and operations managers, and between state and federal agencies can be fraught. Providing the space for frank, open discussions between all these different roles is essential to support the growth and maturation of environmental water law and practice.

This workshop aimed to bring together a diverse range of environment and water law academics, policy makers and practitioners from the government, NGO and private sectors, across Australia, to share knowledge, participate in frank discussion and identify emerging research issues in the environmental water law and policy space. Each participant (excluding the session chairs) was asked to identify:

1. Which part of the workshop did you find most valuable?
2. What issues do you regard as the most pressing for future research?

Seventeen participants provided feedback on the workshop. Feedback was provided anonymously in written form.

## Valued outcomes

The respondents highly valued having a broad range of expert opinions in the room with sufficient time given to shared conversation and networking:

* *“A forum for broad ranging discussion.”*
* *“Frank exchanges among some of the best experts in Australia.”*
* *“Having a range of disciplines (all with a common focus). This enables different ways of looking at the problems and come up with different ideas to fixing them.”*
* *“Benefit of contributions from professionals/experts of varying backgrounds”*
* *“Presentations and comments by panelists - excellent process.”*
* *“Good range of topics. Useful consideration of issues beyond environmental water, i.e. environmental water within broader legal and operational context. Great mix of expertise/experience.”*
* *“Was great to hear from a range of key minds in this area.”*
* *“Frank discussion by experts from a range of perspectives.”*
* *“Interaction and discussion across themes, disciplines and ideas/viewpoints.”*
* *“Range of disciplines and perspectives being brought to issues.”*
* *“The exchange of ideas and innovative suggestions from the range of perspectives/disciplines represented was excellent.”*
* *“Networking and linking with non-academics”.*

Having a mix of practitioners as well as policy makers and academics was also valued:

* *“Hearing practical experiences of water managers and operators as a foil to apply the insights and understandings from the lawyers/policy makers/regulators.”*
* *“Popular assumptions and conventional wisdoms crash into "practical realities"!”*
* *“Discussion of practical impediments to implementation of 'noble' principles.”*
* *“Great presentations on the operational realities of environmental water - very useful to use this as the starting point for thinking about what is needed in a policy/legal sense. Great to have access to a big group of people with detailed operational understanding.”*

Participants also commented that there are not enough opportunities to have these sorts of discussions:

* *“Smart, experienced people able to discuss freely the issues that cross our minds, but that we don't often get to stop and consider. Great to have these discussions outside the usual work context meetings.”*

Finally, participants learnt about new ideas and gained new perspectives:

* *“The general discussion on the various topics. Presentation on running the Murray system differently to achieve flows ~ 80,000 ML/d to flood more of the lower Murray floodplain and the various options/constraints to achieve this (re 3rd party impacts).”*
* *“I gained a much more positive impression of work underway in the MDB than I had. There is also more interest in a world larger than the CEWH, which is clearly a first stage.”*
* *“(1) much better understanding of the role and dilemmas of the CEWH and other environmental water holders (2) challenge of defining how to define desired sustainability outcomes (3) utility of environmental water trading, including potentially in groundwater context (3) excellent explanation of flood liability constraint in MDB”.*

## Emerging research issues

One of the core aims of the workshop was to identify the emerging research issues as the law and practice of environmental water management becomes part of the mainstream business of water resource management.

Four key areas emerged from the discussions and the participant feedback. Each issue included both a need for research as well as a need for practical input on how to effect change. Whilst new ideas and new perspectives are needed, research in this field must be grounded in the reality of day-to-day water resource management.

### Legal review of roles and responsibilities

Firstly, there is a need for broad scale legal review to clarify roles and responsibilities in environmental water management, particularly within the Murray-Darling Basin. Environmental water operates within a nested governance structure, so clear roles and responsibilities are essential.

* *“It seems to me the system being designed must have flexibility and adaptability - rigid black letter law could be incompatible with that. The sort of research I think is required is very broad, high level governance - who has responsibility, authority and accountability for managing the whole system - at all levels of government, for environmental, social and economic outcomes etc, all sorts of water, for all purposes (environmental, agricultural and others). No such structure exists - many agencies manage small bits of this intricately interconnected system, in isolation and frequently with insufficient knowledge and resources. Law Schools like Melbourne University DO have a great potential role here, but it is very different from what is normally done.”*
* *“Do overarching institutional frameworks (re environment) need to be reformed in order that there is more consistency across the administration of matters relating to environment? Personal property rights of/vs public rights (public good).”*
* *“Looking into ways of coordinating environmental flows across existing agencies and potentially how to optimise/reconfigure.”*

### Evolving nature of environmental water holders

Secondly, there was interest in the evolving nature of environmental water holders and the nature of the legal rights to water that they hold.

* *“Issues: (1) likely evolving role of environmental water holders (2) property rights and role in protecting environmental water”*
* *“How should legal/legislative frameworks address non-holdings* [rules-based] *environmental water”*
* *“Mechanisms to support whole-of-system changes for environmental and efficient productive use, in consideration of: (1) the nature of an entitlement and the rules which give effect to it and enable use, but which continue to evolve (2) 3rd party positive and negative impacts (3) payment of costs for environmental/public/private benefit resulting from water acquisition and use”*
* *“Focus on implementation (so often with environmental reform, implementation is poor, patchwork, deficient, etc): (1) floodplain management planning to implement environmental flows (2) mechanism to distribute costs/benefits between public/private (3) operational practice: what needs to change.”*

### Environmental water flooding

Thirdly, there was much support for more investigation of the role of environmental water flooding, third party compensation and liability.

* *“From a legal perspective, the need to develop innovative options to allow environmental water to be delivered to floodplains is an important area: easements, land use planning, buy-out/conversion back to floodplain over time, etc.”*
* *“A lot of discussion was about mechanisms to facilitate watering of floodplains taking into account 3rd party impacts. Much of the focus was around legislative and/or regulatory mechanisms. However, a key impediment is the political will to exercise these instruments. More focus on the 'social' licence to affect change is needed to facilitate/empower governments to act.”*
* *“Community engagement in constraints management”.*

### Integrating groundwater and surface water

Finally, there was strong support for an environmental water framework that better incorporates groundwater management and groundwater dependent ecosystems:

* *“How to bring groundwater as a norm into environmental water policy and practice”*
* *“Application of "environmental water" and mechanisms for protecting environment values to groundwater”.*

This range of issues provides a rich vein of potential future research opportunities. Environmental water law and practice will ‘grow by doing’, and timely, relevant research linking academic output to on-ground policies and operations can nurture this growth and development.

# Appendix

The following papers were presented by the key speakers for each topic at the workshop.

1. Ben Docker, *Structural issues and the “big picture”: What institutional mechanisms and legal status can and should we provide for environmental water as a “partner” in water use?*
2. Gary Smith, *How can, and how should, the environment fit within “mainstream” water law and policy mechanisms?*
3. David Dreverman, *What special legal issues arise for the use of environmental water in times of “flood” (natural or artificial)?*
4. Alex Gardner and Michael Bennett, *How do environmental conservation laws interact with environmental aspects of water laws?*

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