16 December 2011

Productivity Commission
LB2 Collins Street East
Melbourne Vic 8003

Re: Barriers to Effective Climate Change Adaptation - Public inquiry

To the Commissioners,

We thank you for the opportunity to make a submission to the Productivity Commission Public Inquiry into the barriers to effective climate change adaptation.

This submission, prepared by the coordinators of the Water Governance Research Initiative – an activity of the National Climate Change Adaptation Research Facility (NCCARF) Water Network – outlines opportunities for embedding a systemic and adaptive governance regime to more effectively overcome barriers to climate change adaptation. The objectives of the Water Governance Research Initiative are to create a community of conversation about water governance in Australia, build collaborative research links, create opportunities for co-researching and information sharing, and provide opportunities for early-career researchers to participate in a national network of researchers and research-users (http://www.nccarf.edu.au/water/node/5).

This submission focuses on water governance. We attach three Policy Briefings prepared by our Network, and emphasise four key messages in the text below.

Please feel free to contact us for any further information or clarification regarding our submission.

Yours sincerely
The NCCARF Water Governance Research Initiative

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Introduction

Climate change adaptation has to be grounded in specific domains such as water, bushfire, transport or energy. Our submission concerns water and its governance in a climate-change world. We acknowledge that markets have been important in granting flexibility to individuals and businesses, however, we emphasise that markets, and market-based mechanisms, are by themselves insufficient. A range of approaches is required. In particular, adapting to climate change will require a broader strategy within which market mechanisms operate as outlined in Figure 1.

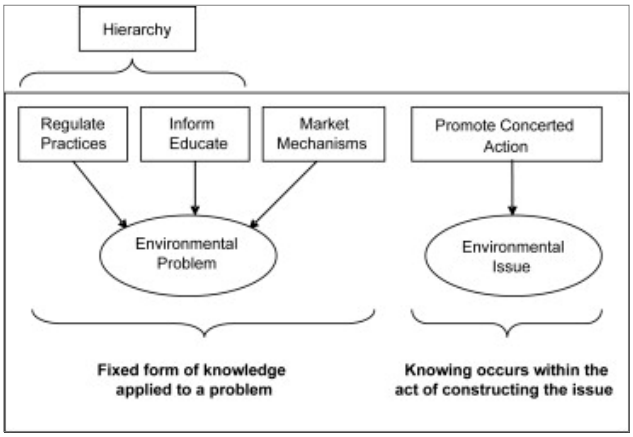

Figure 1. Governance mechanisms based on different epistemological assumptions for situations like climate change adaptation (Source: Ison et al 2007)[1].

It is government that sets the range of strategies under which markets operate. We urge the Commission to acknowledge that government has a significant leadership role that extends beyond correcting market failures. As evidence for this assertion we refer you to the set of papers published as a special issue of the journal Water Resources Management which we have co-edited (see Annex 1).

(1) ***The 'problem-situation' must be reframed – market barriers are not the only barriers to adaptation***

The issues paper of this inquiry evidences a problem-framing deficiency. Page 8 suggests that government intervention could address some barriers to adaptation, but largely insofar as such intervention addresses market failures, or marginal behavioural considerations.

We recognise that many barriers to adaptation can be assessed using a market-based analysis. For example, building levee banks to protect property increases flood intensity downstream. This is a negative externality that can be addressed by adjusting building standards and insurance structures.

However, framing adaptation as primarily an issue of market efficiency or of risk can foreclose important discussion. Climate change is a 'wicked' problem, characterised by complexity, connectedness, conflict and multiple perspectives.[2]

We encourage a shift from impact-based policies to vulnerability-based policies that build adaptive capacity.[3] Impact-based policies seek to better predict the future and reduce uncertainty. These include attempts to distribute loss, change land use, or avoid the effects of climate change. Market analyses tend towards impact-based policies.

In contrast, vulnerability-based policies accept future uncertainty, and seek to learn from the past. Such policies aim to build adaptive capacity and social learning, which means the ease at which institutions (and individuals) can adapt to new conditions. Market analyses tend to ignore this type of reform, yet both are

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1 Ison, R.L., Röling, N. & Watson, D. (2007) Challenges to science and society in the sustainable management and use of water: investigating the role of social learning. *Environmental Science & Policy* 10 (6) 499 – 511.

2 APSC, 2007 Tackling Wicked Problems: A Public Policy Perspective Australian Public Service Commission, Canberra, 16 December, http://www.apsc.gov.au/publications07/wickedproblems.htm

3 Jan McDonald, 'Mapping the Legal Landscape of Climate Change Adaptation' in Tim Bonyhady, Andrew Macintosh and Jan McDonald (eds), *Adaptation to Climate Change: Law and Policy* (The Federation Press, 2010), 1, 10.

necessary.[4] The recent paper by Wallis and Ison (2011)[5] outlines how institutional complexity , including history and initial starting conditions gives rise to pathway dependencies and technological lock-in that can lead to the failure of new institutions, including market mechanisms.

In short, a significant barrier to adaptation is continuing to see the role of government as primarily to service the market (p.11, Issues Paper). The classification of barriers (p.7, Issues Paper) is inappropriate because it wholly ignores the need to build adaptive capacity and appreciate institutional complexity.

We recommend that the Commission reframe the inquiry to recognise that harnessing market forces is only one of many approaches required to adapt to climate change. Adaptation should also be reframed to present positive opportunities, such as a move to a low carbon, less 'impact', form of economy and society.

(2) ***Adaptive water governance needs long-term planning; governments need to take a lead role***

We believe that market mechanisms are important, but they must be used within broader strategies and institutional planning led by government.

As the attached *Water Policy Briefing No. 1* notes, water governance in Australia is trending towards tighter central control. We endorse the recent National Water Commission assessment of Australia's water resources. The NWC reports that the water planning cycle can take up to 15 years, and that strong governance and institutional arrangements are necessary to ensure that the benefits of improved practice flow across all regions and plans.[6] Our Network members also support the continuation of the NWC in an expanded and more independent role as a key means to generate long-term systemic and adaptive governance, which is needed as a response to the uncertainties of climate change.

We point out that new institutional forms like the Commonwealth Environment Water Holder (CEWH) are products of institutional planning. The CEWH operates as a market actor, but it would not have been established if the sole role of government were to facilitate private market responses. This is an example of market mechanisms operating within broader strategic and institutional planning led by government. Similarly, the proposed Murray–Darling Basin Plan[7] demonstrates long-term resource planning under which water trading functions.

We do not mean that adaptive measures should be centralised, however. On the contrary, large-scale, centralised infrastructure creates pathway dependencies, which lock us into certain approaches.[8] For example, building a desalination plant to adapt to water scarcity reduces the incentive and capacity of city councils to find more localised solutions.

Rather, we advocate integrated planning in which social learning principles are used to co-ordinate the multi-level institutions that govern Australia's water resources. Governments should steer, not row.[9] Failure to co-ordinate adaptive responses may lead to overall maladaptation – promoting domestic rainwater tanks without concomitant developments in public health surveillance may increase the incidence of vector-borne diseases, for example.[10]

We suggest that a barrier to adaptation is the lack of long-term, government-led planning that increases adaptive capacity through social learning as well as governance research which better informs the design and implementation of institutions and the roles for agencies highlighted by the VFR and Comrie reports.

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4 D Kennedy, L Stocker and G Burke (2010) 'Australian local government action on climate change adaptation: some critical reflections to assist decision-making', *Local Environment* 15:805–816.

5 Wallis, P. & Ison, R.L. (2011) Appreciating institutional complexity in water governance dynamics: a case from the Murray-Darling Basin, Australia, *Water Resources Management* 25 (15) 4081. (DOI: 1007/s11269-011-9885-z)

6 National Water Commission, *The National Water Initiative – securing Australia's water future: 2011 assessment* (September 2011, Canberra).

7 Murray–Darling Basin Authority, *Proposed Basin Plan* (November 2011, Canberra).

8 Rebekah Brown, Richard Ashley & Megan Farrelly (2011) 'Political and Professional Agency Entrapment: An Agenda for Urban Water Research', *Water Resources Management* 25(15): 4037–4050. See also Anita Foerster (2011) 'Developing Purposeful and Adaptive Institutions for Effective Environmental Water Governance', *Water Resources Management* 25(15): 4005–4015.

9 Neil Gunningham and Cameron Holley (2010) 'Bringing the 'R' word back: regulation, environment protection and NRM', Occasional Paper 3/2010, The Academy of the Social Sciences in Australia, Canberra.

10 McDonald, above n 1, 26.

(3) ***We must consider whole systems thinking for water governance***

For the past decade or more, rural water scarcity has dominated water debates. Flood risk, for example, has been largely neglected.[11] As the attached policy briefings discuss, so too have water quality, surface water/groundwater interactions, urban water management, and the effect of land use on water yields. Yet climate change is likely to affect all of these. Until there is strategic planning for the whole water system, adaptation will not be effective.

There is also a danger that the response by Governments to reports such as the VFR and Comrie report (see below) will reflect "siloed" thinking and decision-making rather than whole of government responses. In this regard climate change adaptation to be effective has to be a whole of government approach that is embedded throughout the planning and regulatory system.

(4) ***Decision-makers need to engage community***

We commend the Commission for inquiring into behavioural and cultural barriers to adaptation. However, the Issues Paper (p.10) remains focused on such barriers as they relate to markets. We would go further. As discussed in *Water Policy Briefing No. 2*, there is a 'paucity of effective integration of community values and best-practice community engagement in water governance'. Community engagement leads to appropriate goals and solutions, and helps minimise conflict. Neighbourhood Environment Improvement Plans are good examples of how communities can effect adaptation.[12] However, the community is more than a collection of rational economic actors. Consequently, effective adaptation requires that governments understand, consider and engage communities.

In this regard we draw attention into recommendation contained in two recent major inquiries in Victoria, namely (i) The Victorian Fire Royal Commission (VFR) recommendation (No. 93) that the state comprehensively pursue the objective of achieving (where possible) the priority outcomes of the National Strategy for Disaster Resilience and the imperative of shared responsibility, in particular by:

• requiring that local knowledge is considered as a critical component of all phases of emergency management

• involving local communities in the development and ownership of community resilience plans based on an 'all hazards' approach and tailored for the specific needs of each community

• encouraging local communities to form resilience committees to develop and administer community resilience plans

• nominating Victoria Police as the lead agency in initiating the strategy to develop community resilience committees; and

• requiring emergency service agencies to consult and engage with local community resilience committees in the preparation, planning, response and recovery phases of emergency management, and

(ii) the recommendation in the Comrie Flood Inquiry [p. 220] which says: 'The VFR is aware of an ongoing project that is designed to build community resilience and empower communities to prepare for, respond to and recover from emergencies. This project exists under the banner of a fire learning network of 'strategic conversations' and is being undertaken by the Knowledge and Learning Unit of the Office of Land and Fire at the DSE. The conversations "value local knowledge and experience and strengthen the existing networks through which people support each other, share knowledge and make sense of the things that place stress on community life. They are enabling government to participate meaningfully in dialogue with communities about things that matter to the local people, and to deliver its services more effectively".

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[11] Lee Godden and Anthony Kung, 'Water Law and Planning Frameworks Under Climate Change Variability: Systemic and Adaptive Management of Flood Risk', *Water Resources Management* 25(15): 4051–4068.

[12] Neil Gunningham, Cameron Holley and Clifford Shearing (2007) 'Neighbourhood environment improvement plans: Community empowerment, voluntary collaboration and legislative design' *Environmental and Planning Law Journal* 24: 125–151.

Conclusion: What constitutes effective governance and effective adaptation requires research

Adapting to climate change is an immensely complex task. No one approach will be sufficient, and failure to recognise the 'wickedness' of climate change constitutes perhaps the most significant barrier to adaptation.

This submission, and the accompanying policy briefings, recommends a governance approach that use social learning as a way of increasing adaptive capacity. While market mechanisms play an important role in granting flexibility to individuals, they must exist in broader strategic and planning efforts enabled by government.

Annex 1 - Special Issue on Water Governance in a Climate Change World: Appraising Systemic and Adaptive Effectiveness

Guest Editors: Lee Godden, Raymond L. Ison and Philip J. Wallis
Water Resources Management
Volume 25, Number 15 / December 2011

Water Governance in a Climate Change World: Appraising Systemic and Adaptive Effectiveness
Lee Godden, Raymond L. Ison and Philip J. Wallis. p. 3971-3976
http://www.springerlink.com/content/u36u52636962p22q/

Sustainable Catchment Managing in a Climate Changing World: New Integrative Modalities for Connecting Policy Makers, Scientists and Other Stakeholders
Ray Ison, Kevin Collins, John Colvin, Janice Jiggins and Pier Paolo Roggero, et al. p. 3977-3992
http://www.springerlink.com/content/rr456p8437767686/

Water Reform and the Federal System in the Murray-Darling Basin
Daniel Connell. p. 3993-4003
http://www.springerlink.com/content/a6r0602q326551r9/

Developing Purposeful and Adaptive Institutions for Effective Environmental Water Governance
Anita Foerster. p. 4005-4018
http://www.springerlink.com/content/d7u11w325k7875x3/

Towards Adaptive Integrated Water Resources Management in Southern Africa: The Role of Self-organisation and Multi-scale Feedbacks for Learning and Responsiveness in the Letaba and Crocodile Catchments
Sharon Pollard and Derick du Toit. p. 4019-4035
http://www.springerlink.com/content/k292v26570182765/

Political and Professional Agency Entrapment: An Agenda for Urban Water Research
Rebekah Brown, Richard Ashley and Megan Farrelly. p. 4037-4050
http://www.springerlink.com/content/56658w71nq034326/

Water Law and Planning Frameworks Under Climate Change Variability: Systemic and Adaptive Management of Flood Risk
Lee Godden and Anthony Kung. p. 4051-4068
http://www.springerlink.com/content/d785g33342050157/

The Impact of Institutional Path Dependence on Water Market Efficiency in Victoria, Australia
Edwyna Harris. p. 4069-4080
http://www.springerlink.com/content/d7r3p947787h434w/

Appreciating Institutional Complexity in Water Governance Dynamics: A Case from the Murray-Darling Basin, Australia
Philip J. Wallis and Raymond L. Ison. p. 4081-4097
http://www.springerlink.com/content/10w7742j862vv418/