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Barriers to Effective Climate Change Adaptation
Productivity Commission
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By email: climate-adaptation@pc.gov.au

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Dear Commissioners,

Submission: Barriers to Effective Climate Change Adaptation

I write with a brief submission in response to your inquiry into "Barriers to Effective Climate Change Adaptation" to address a few key points.

1. Risks and maladaptation

The Draft Report states the "within limits, the impacts of gradual climate change should be manageable." However there is every likelihood that climate change impacts will not be gradual, as indicated by the step changes in rainfall and runoff in south western Western Australia since the 1970's. In the case of extreme events they may not be easily managed as the recent flooding in Queensland suggests. Hence more robust risk management and institutional responses may be required. In this respect the Commission should draw on the frameworks offered by Dovers and Hezri (2010) to recommend when and how Australia should move from type 2 to type 3 adaptation responses.

An important point that the Commission needs to consider is that many adaptation measures increase greenhouse gas emissions and that many mitigation measures exacerbate adaptation needs. This is an acute problem in the energy-water nexus, where much adaptation is water related and increases energy use (eg. desalination, interbasin transfers, reticulating irrigation schemes) and many mitigation policies may exacerbate water scarcity (eg. carbon farming, carbon capture and storage, geo- and solar thermal power stations in arid areas) (Pittock, 2010, 2011). The Commission should consider recommendations for more integrated governance of climate adaptation and mitigation, energy, and water policies (Hussey & Pittock, 2012; Pittock, 2011).

2. Infrastructure

The "hydraulic bureaucracy" sees governments and industry tend revert to infrastructural solutions as an adaptation response (Molle, Mollinga, & Wester, 2010). There is a need to guard against ill-considered infrastructure led responses as they frequently involve hidden subsidies and other costs versus encouraging ecosystem-based adaptation that often has a broader range of public benefits. Many infrastructure-based adaptations amount to

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maladaptation, namely: increasing emissions, inflicting disproportionate burden on the most vulnerable, having high opportunity costs, reducing incentive to adapt further, creating path dependency and increasing existing stressors (Barnett & O'Neill, 2010). Many such measures are overly-narrow adaptation that may only work within narrow parameters that are likely to be exceeded with further climate change (Nelson, 2010).

These perverse outcomes are indicated in recent government programs in the Murray-Darling Basin. In the case of the Coorong and Lakes, Gross et al. (2012) identify how initial infrastructures have repeatedly failed and induced further infrastructure interventions that in turn have had serious perverse consequences and are also likely to fail. By contrast the governments have not put in place effective regional institutions to oversee ongoing management and adaptation. In the case of "environmental works and measures" Pittock and colleagues highlight the small wetland areas conserved at a high cost and with perverse impacts, as well as the likelihood that these measures are overly-narrow and will fail (Pittock & Finlayson, in press; Pittock, Finlayson, Gardner, & McKay, 2010; Pittock, Finlayson, & Howitt, submitted).

An important measure that the Commission should recommend is the adoption of periodic infrastructure relicensing as a means of ensuring that infrastructure remains safe and continues to deliver economic benefits while minimising social and environmental costs as the climate and community standards change (Pittock & Hartmann, 2011). Water infrastructure is a good example, where in Australia most large structures are regulated for safety but not to periodically reassess their economic, social and environmental performance despite changes in economic and climatic conditions, and social and environmental standards. By contrast, in the United States, the Federal Energy Regulatory Commission requires non-Federal hydropower dam owners to justify every 30 – 50 years that their structures are safe, economically beneficial while minimising impacts. Australia should establish similar institutions for infrastructure management, including for climate change adaptation.

3. Beyond no and low regrets measures

In my international water-related research it is apparent that better management of river basins is one key mechanism for facilitating adaptation to floods, droughts, water scarcity and degradation of water quality that are all anticipated impacts of climate change (Pittock, 2009). Consequently the Commission should consider recommending strengthening of river basin management institutions as a key way of underpinning climate change adaptation. In the Australian context bodies like catchment management authorities need greater independence from short term policy changes of state and federal governments. Stronger mandates are needed. Further, independent sources (eg. local rates) for at least part of their funding would ensure more consistent programs for managing risks from climate variability and change.

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The Commission should also consider how ecosystem-based adaptation may be facilitated that would both reduce risks of climate change impacts while also maintaining and enhancing generation of ecosystem services (Environment Department The World Bank, 2009). This would include such measures as restoring floodplains to reduce flood risks.

Below I list the references cited above and most of these are available through academic libraries. I can supply the unpublished manuscripts to the Commission on request.

Yours sincerely,

Dr Jamie Pittock

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