

Old challenges, new tools: Adaptive water planning in Australia

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INTRODUCTION

Water scarcity and climate variability is an increasing international problem. The recent global financial crisis has increased the number of people living below the poverty line to over 1 billion, and the amount of water currently used in agriculture will need to double in the first half of this century. Poverty, sanitation, clean drinking water, urbanisation, and growing dietary changes are growing concerns. Pressure on the use of water for food and export of virtual water is a special challenge for regional Australia which requires increased effort in irrigation water use efficiency. Also, several audits show that river and estuarine health is deteriorating requiring a re-balancing of water allocated to consumptive use and reserved for the environment. The proposed development of a new cap on consumptive use based on sustainable yield in the Murray-Darling Basin has created anger and community backlash.

This paper describes the research carried out by two national projects in water planning to increase collaboration between communities and water planners. We developed a range of tools specifically targeted to important planning issues in very diverse regions in Australia. These tools are expected to reduce conflict through identifying community values in water and environmental assets, and development of transparency in the planning process, particularly where there are disputes over science.

¹ Presented by Poh-Ling Tan. This is a summary of a paper submitted for publication to the Journal of Hydrology.

BACKGROUND

In Australia, water reform principles are currently provided by the National Water Initiative (NWI) (Council of Australian Governments, (COAG,2004). Its implementation is the responsibility of state jurisdictions or regional multi-state and commonwealth partnerships, such as the Murray-Darling Basin Authority. Consequently a range of approaches is required to deal with different scales and local characteristics of planning needs, including the needs of Indigenous people who until now have been poorly represented.

Participation is very much part of the international discourse of water planning. Water planning in Europe recognises that 'new and radical approaches to water management will be required for the next decade in which communities as well as consumers will need to be fully engaged' (Staddon, 2009, preface) and that links must be established between land use and water planning (Howes, 2008). The European Framework Directive is supported by a valuable practical manual, an approach to social learning that is 'not only about improving the understanding of complex interconnected problems but also enables the different actors to understand each others' perceptions and provides the basis for sustainable collaboration' (Ridder et al., 2005, foreword).

The principle of public participation in water planning has been given effect in Australia through three main national policy initiatives: the Water Reform Framework (COAG, 1994); the National Principles for the Provision of Water for Ecosystems (Agriculture and Resource Management Council of Australia and New Zealand & Australian and New Zealand Environment and Conservation Council, 1996) and the National Water Initiative (COAG, 2004). These three initiatives are the keystones of the ambitious national water reform agenda.

The NWI identifies three objectives of participation: improved certainty to build confidence in reform processes; transparency in decision making; and sound information for all sectors at key decision points. However, there are to date no national guidelines to give effect to the role of public participation in water reform in Australia, and, as a consequence, input to the decision making process for prioritising desired outcomes is not transparent to all stakeholders. The tensions inherent in the NWI are intended to be resolved through statutory water plans. Under the NWI, statutory water plans regulate the catchment-based allocation of water in the surface and groundwater systems for consumptive, environmental and other purposes, detail water access and use entitlements, and provide management arrangements, including the establishment of rules for water trading.

CHALLENGES TO WATER PLANNING IDENTIFIED

An independent review of Australian water management by the Organisation for Economic Cooperation and Development (OECD,2008) recognises ‘real progress’ over the last decade. In particular, the development of water access entitlements, institutional arrangements for trading and setting environmental flow, development of an integrated catchment-based approach, and separation of regulatory and water service delivery functions are commended.

However, many planning challenges remain including over-allocation, poor coastal water quality, improved irrigation water use efficiency and delivery and full cost recovery. Recommendations include close co-operation with Indigenous peoples, noting that 14% of land is under Indigenous ownership and management, and a strengthening of public information and participation principles including timely responses to decision making and access to courts (OECD, 2008, pp. 31, 230). Assessments of water reform progress carried out by the National Water Commission (NWC) and others indicate that the reform targets remain a challenge (Gentle and Olszak, 2007; NWC, 2007; Hamstead et al., 2008; NWC, 2009). These areas, many of which were addressed in our research, include:

- Addressing the over-allocation of water resources to achieve ecological sustainability;
- Improving community engagement;
- Building community confidence in the planning process;
- Improving transparency of trade-offs in decision making;
- Providing better, more explicit mechanisms to include Indigenous interests in water planning;
- Dealing with uncertainty and change, including climate change;
- Improving risk and impact assessment, including socio-economic assessment;
- Better recognising connectivity between surface and groundwater in water plans; and
- Aligning water allocation planning with natural resource management and urban water supply planning.

A specific feature of Australian water planning is the need for adaptation to climate variability and change, growing urban populations and new policies that affect water availability and costs. These changes include new policies on land use that affects water interception, a growing forestry industry that is stimulated by prospects of carbon taxes, new mining and coal seam gas developments and major developments in using pipelines to achieve rural to urban transfer. The nexus between water and energy is an emerging issue

for water pumping and treatment including desalination. As noted earlier there is an overriding concern about the resilience of the aquatic ecosystem, especially in the Murray-Darling Basin.

RESEARCH FINDINGS

Three regions were selected by the project team using a multi-criteria evaluation that included: the likelihood of successful outcomes (including access, timing and support from agencies); the presence of water planning challenges in the region; and risk factors including the absence of high level of conflict and low risk of political pressure. The study regions were the Regulated River Murray, South Australia; the Condamine Alluvium, Queensland; and the Tiwi Islands, Northern Territory. Stakeholder, context and issues analyses were used to prioritise areas of concern then a series of tools were collaboratively developed.

Despite governments having a statutory duty to manage water sustainably, decision makers are still open to political processes. Thus the first advantage of collaborative planning is that decision makers are given input from a range of stakeholders and broader communities than is normally available through the usual information giving and consultation processes. In line with international approaches calling for adaptive management of complex natural resource systems we advocate the use of an adaptive management framework to support local and community involvement in these challenges and opportunities

We found that 'best available science' needs to be accessible and bridge the divide between 'Western science' and Indigenous knowledge. Where the science is uncertain, or where communities query the science, collaborative problem solving may provide solutions, or at the very least, narrow the range of uncertainty. Technical credibility of the process can be measured, and builds community confidence in the plan.

Our research shows how well-constructed deliberative processes formulated with planners and targeted towards specific questions where community input is vital have the potential to shift entrenched interests and reach an agreed position, even if total consensus is not possible. These processes have been used in other public problem-solving contexts, but many planners are reluctant to apply them in water planning or lack the appropriate skills to do so.

Implementation of scientifically credible, transparent and collaborative water planning processes will build community confidence in water plans and lead to improved management for maintaining sustainable river ecosystems.

Four priorities are highlighted for the future:

(1) Indigenous values are viewed as lacking contemporary influence, resulting in symbolic recognition. We provide tools for improving Indigenous involvement and note that while Indigenous water reserves and innovative methods are more readily accepted in Northern Australia where there is less competition for water, Indigenous Australians in overused catchments struggle to find recognition of their interests and values in water.

(2) Especially where water is over-allocated and competition is high, it remains a challenge to use 'best available' information in a way which feeds into the processes of planning.

(3) Achieving distributional equity remains a major challenge, especially in planning for reduction of sustainable yield and impacts on third parties. As noted by the current chair of the Murray-Darling Basin Authority, local involvement is critical to develop options and find trade-offs for achieving ecosystem resilience in the face of increasing demand for water combined with climate variability and change. The issue of distributional equity applies also for Indigenous Australians in overallocated catchments.

(4) Overall, the challenge is to make the tools available to all stakeholders and to embed the findings of this project into collaborative water planning in Australia. Also, since many of the challenges are common to other countries we anticipate these results will be applicable more broadly.