

ABARE Conference, 6-7 March 2007, Hyatt Hotel, Canberra
Invited paper -Regional Water Planning in Theory and in Practice

Conflict Resolution in Regional Water Sharing: Opportunities for Social Learning

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Introduction

I thank Land and Water Australia (LWA) for the invitation to present this paper. I can certainly speak from experience about conflict in regional water sharing, having had the dubious distinction of chairing of the Murrumbidgee River Management Committee (MRMC) that met 32 times over five years, first to optimise the allocation of water for the environment and then to develop a statutory water sharing plan. The plan was one of the first to be gazetted in New South Wales (NSW), in early 2002. The final draft plan (MRMC 2002) contained eight dissenting individual reports from a committee membership of eighteen, and was given an E rating ('needs to be rewritten') by the NSW Nature Conservation Council. The planning processes were clearly not conducive to achieving interactive and procedural justice so it is not surprising that the fairness of the outcome (distributional justice) was questioned and disputed.

Nevertheless I am still a strong supporter of public participation in regional decision-making and will later provide examples of positive recent developments in the Murrumbidgee to indicate the extent to which opportunities for innovation and engagement (social learning) can emerge, even when the planning processes leave a lot to be desired. Effective public participation is a precursor for resolution of conflict through social learning so it is important that we understand the processes of interactive and procedural justice and develop criteria for audit and review.

Conflict in water sharing

Water sharing in the Murrumbidgee Valley is particularly contentious because of conflicting needs of irrigators and the environment but it is only one example of regional conflicts making headlines over the last decade, and leading to demands for improved public participation.

For example, under the banner headline '*Water Wars*' the Australian (15 September 1995) reported on the industry response to the COAG Water Reform Framework announcements that there should be full cost recovery and increased environmental flows: '*At Deniliquin on Wednesday afternoon 500 irrigators voted unanimously to reject the governments new water policies and **demand**ed consultation*' (my bold).

Recently, local Griffith irrigators are '*fuming over mid season allocation cuts imposed by the state*' (Daily Advertiser, Wagga Wagga, 13 January 2007) and 2000 irrigators turned out in Deniliquin '*to demand compensation from the government for water they believe was stolen*' (Daily Advertiser, 16-17 December 2006). Issues still creating conflict include disputes over costing and pricing, paying for infrastructure when no water is delivered, effects of trading on stranded infrastructure, exit fees imposed by irrigation corporations, effects of trading on health of regional communities, conditions under which environmental water might be purchased from irrigators, rural to urban transfers, and use of water for electricity generation across state borders. Again under the heading '*Water Wars*' the Australian (9 February 2007) describes the Prime Minister's \$10 billion water plan as a

looming tension between commonwealth and state governments over water management and control.

In a reflective piece written a decade ago, a key commentator wrote: *'Increasing competition for water resources is not a new feature of resource management. What is new is the involvement of a much wider community in considering these issues. Once powerful interests could do deals with politicians in smoke filled rooms. Now such deals are subject to intense media and public scrutiny. We have an emerging set of tools for dispute resolution and the community is slowly learning to use these tools effectively'* (Cullen 1997).

But ten years later what is the evidence that public involvement is being incorporated into planning?

Criteria for effective public participation and social learning

The literature about public participation and effective planning processes is extensive (eg Richardson 1983; Beder 2006). Paton *et al.* (2004) have written about the strengths and weaknesses of regional approaches to natural resources management in Australia and Gray (2005) describes the role of social power relationships in local and regional governance. Less has been written about rural water specifically. Syme *et al.* (1999) and Nancarrow and Syme (2001) have written about fairness principles as a concept for judging the justice of water allocation decisions and about the process of engagement that is required. Table 1 gives a summary of ideas together with a short list of statements that might be used to test effectiveness of community participation and social learning (supplemented from Syme and Sadler (1994) and Syme and Nancarrow (2002)).

Table 1 Justice Criteria in water allocations decisions and link to social learning

PROCESS	DESCRIPTION	STATEMENTS
Interactive justice +	Community engagement that that is pleasant, dignified and adequately informed	<i>I enjoyed the community meeting I liked the way the meeting was run I found it easy to contribute to discussions The information provided was sufficient I had the chance to say all I wanted to</i>
	Adequate representation so that all participants can be heard by decision makers	<i>There seemed to be a good variety of people and interests at the meeting The boundary of the topic for decision was clear</i>
Procedural justice	Clarity about responsibility for advice and decision-making	<i>Our role in advice and decision making was clear at the beginning The agency listened to what I had to say The report was an accurate summary of what the meeting said</i>
Distributive justice	Achieved when there is satisfaction with the decision itself –requires fairness in interactive and procedural process	<i>I think the agency made the best decision I think that the final decisions will be fair</i>
Social learning	Adaptive management, joint discovery, trust and dignity	<i>I would participate in a similar meeting/ process again We found new options and solutions We all learned about each others' agendas I changed my position on We reached agreement We agreed to further explore several areas ..</i>

Process fairness and justice is generally regarded as prerequisite for creating a climate of trust and enquiry (social learning). This is consistent with the National Water Commission's (NWC) suggestions on community engagement (Cullen 2006) that *'where there are uncertainties, a process of joint discovery may be appropriate'*. Hillman *et al.* (2005) advocate a similar approach for dealing with complex natural resource management (NRM) issues where information is limited and propose a framework for 'management experiments' based on the principles of adaptive management. As noted by Mostert (2003), in a report for the European Water Framework Directive: *'Effective public participation maximises the opportunity for social learning. Social learning requires long term participation and capacity building in a broad sense (awareness, knowledge, skills and operational capabilities)'*.

Audit and review

The two agencies with key responsibilities for review and audit of water sharing planning, the NWC and the NSW Natural Resources Commission (NRC), also recommend attention to the principles of justice and fairness.

Under the heading 'Community Engagement', NWC Commissioner Cullen (2006) advises that: *'It is essential to engage the community so that everyone feels they have had an opportunity to be involved and be heard. Individuals expect procedural justice and some equity in the outcomes. Outside interests should not dominate' and 'There should be a serious effort to engage the wider community'*

An audit of Water Sharing Planning by the NWC resulted in retention of \$13 million of competition payments from NSW, reflecting issues of interactive and procedural justice as key concerns: *'Ecological science was inadequate; planning lacked transparency; publicly available information is insufficient; and a coherent methodology is needed for assessing environmental water needs'* (NWC 2006).

The NRC have developed 'Standards of Quality NRM' that seem to reflect the justice criteria, although different words are used. Community engagement is listed as one heading in a seven step adaptive management framework (NRC 2006). Guidance on community engagement to Catchment Management Authorities (CMAs) includes advice on developing: *'effective community networking with all relevant and interested community groups... that recognises diversity, is culturally appropriate'...* and is *'voluntary and building a willingness to contribute'*. It is also suggested that CMAs should *'monitor and evaluate the effectiveness of community engagement processes'* but no specific criteria are provided.

Murrumbidgee case study: issues

As noted earlier it could not be claimed that a satisfactory outcome was achieved through the water sharing planning process in the Murrumbidgee, and deficiencies in interactive and procedural justice are described previously (Bowmer 2003 a, b). Some key points, summarised below, give a flavour of the evolution in planning that occurred over five years (1997-2002).

Interactive justice— The information available was clearly inadequate initially, especially in aquatic ecology and hydrology (only a monthly flow model was available). So it seemed sensible to start with a mechanistic set of river flow rules that attempted to restore and mimic some of the natural variability in flow ('translucency flows'). Later it became clear that this approach would only benefit in-

stream ecological processes in the upper reaches of the river. Consequently some of the translucency water was reserved in the storages to 'piggy back' dam releases onto river height in order to achieve over-bank flow and lateral connection between the river and its wetlands. This required deliberative, rather than mechanistic decision-making, a daily flow model, information on the optimal frequency for wetland connection, and planning and modeling that is long-term (decadal, rather than annual). The 'piggy-backing' methodology is also inconsistent with the principle that environmental water should always have the highest priority in the hierarchy of access rights. The approach, combined with trading options ('countercyclical trading') has been pioneered by the Murray Wetlands Working Group and is being further developed through River Reach by Murrumbidgee irrigation and Murrumbidgee CMA (see later).

Procedural justice — The MRMC, consisting of agency, community and industry representatives reached consensus on environmental flow rules in 1998. Subsequently a change in policy associated with the legislative requirements of the *Water Act 2000* required majority rather than consensus decisions and began a 'slippery slide' from community consultation to ministerial decision-making. The community became confused and angry about the changes. This experience highlights the importance of having agreed ground rules on processes that include technical boundaries and responsibilities for decision-making. Of course, there will always be tension between a central set of policies and principles and local/regional flexibility but for successful engagement, experience everywhere suggests that there should be as much room for local innovation as possible.

Distributive justice— The plan achieved a useful tradeoff between water for consumptive users and the environment that optimised the timing of early season allocation for irrigators and spring time allocation for the environment. Improved security of property rights was also an important issue for irrigators. However, as noted earlier, many of the committee were distressed by perceived ministerial intervention and changes in protocols and 'broke ranks' by going to the press to try to achieve better outcomes for their constituents.

Murrumbidgee case study: outcomes

In spite of problems in the planning process framework, the Murrumbidgee River Management Committee began to develop a knowledge base and bring technical expertise into the catchment to enrich local knowledge through the commissioning of expert panels (eg Buchan, 2000; Agribusiness Taskforce 2000) and research projects (eg Watts *et al.* 2001). This information provides a basis for further progress by a range of community and industry groups. Also, the process of participation set the scene for continuing dialogue and exploration of options.

Some of these approaches include achievement of environmental dividends through new businesses and changed patterns of water use; restoration of more natural flow patterns without the use of more water; and engagement of local people in stewardship and care of riverine assets. Examples follow:

New business and water use efficiency—

The Murrumbidgee Valley Water Efficiency Feasibility Project examined the business case for saving water. The study claimed 1334 GJ per annum of water in unaccounted flows and losses; 945 GJ for saving through investments, reforms and matching crops to soil; and 4500 new job opportunities (Pratt Water 2004).

Evaporation savings of 20-30GL per annum are being made by re-engineering of Barren Box Swamp and use of en- route storages in the Murrumbidgee Irrigation Areas through the activities of Water for Rivers and Murrumbidgee Irrigation (MI 2006a).

Both MI and Coleambally Irrigation Cooperative Limited (CICL) have achieved major water savings through on- and off- farm measures. CICL has recently (2 February 2007) received a \$12.53 million boost from the NWC's Water Smart program for implementing and demonstrating the benefits of an integrated set of cost effective control, sensor and communication technologies. MI lists savings of 88-98 GL per annum in water use efficiency (MI undated).

Proposals to reduce the peak water demand of summer cropping through new business opportunities in winter cropping are being developed with CICL through the CRC for Irrigation Futures System Harmonisation and Regional Partnerships program (Khan 2006).

Environmental benefits without the use of more water—

Improvements in longitudinal connectivity of the river for fish passage are being made through changes in State Water Corporation's (SWC) weir operating protocols (SWC 2006).

Protocols have been established for extension of peak flows from rainfall events by 'pulsing' or regulated flow management; and, where possible, reinstatement of more variable flows in rivers (SWC 2006; Department of Infrastructure Planning and Natural Resources (DIPNR) 2005).

The relationship between river height and wetland watering that provides underpinning information for environmental flow management has been researched by Charles Sturt and other Universities (Page *et al.* 2005) and is being further explored through a project funded by LWA (Murrumbidgee CMA 2006)

A proposal (River Reach) for counter-cyclical trading that is based on 'piggy backing' methodology to achieve river wetland connection in wetter years while providing increased security to irrigators in dry years has recently been funded by the NWC through a partnership of MI and Murrumbidgee CMA (MI 2006b; John Howe pers. comm.)

Environmental management plans have been implemented as part of the operating licenses for Irrigation Corporations and Cooperatives (MI 2006a; CICL 2006). EnviroWise (MI) includes a biodiversity program that focuses on water birds, enhancement of remnant vegetation and tree planting. The Coleambally Land and Water Management Plan focuses on net recharge management, water quality including reduced pesticide levels in drainage systems, and biodiversity. A key achievement is the reduction in salt load and drainage flows leaving the irrigation area.

Investment in a weir on Beavers Creek that will protect about 100km of a Murrumbidgee anabranch from high summer flows while reducing water losses is being explored by Water for Rivers.

Community engagement —

The Fivebough and Tuckerbill Swamps have been designated as wetlands of international importance under the Ramsar Convention; their health has been enhanced by the work of schools and community groups; and irrigation drainage and effluent water is being provided by MI and Leeton Shire Council, respectively (Schultz 2004).

Partnerships have been developed by the Murrumbidgee Wetlands Working Group to restore dry wetlands (Markeys Lagoon) by river pumping and watering: (Forests NSW 2006) and to reverse the permanent inundation of another wetland complex associated with Gogelderie Weir (Coonacoocabil Lagoon) with the Wiraduri community, Narrandera Angling Club, MI and three state agencies (Department of Environment and Conservation 2004).

The Environmental Champions program, a five level accreditation program is designed to give recognition to rice farmers for undertaking activities to achieve environmental excellence and sustainability on- and off- farm; it has been developed by the Rice Growers Association (RGA 2006).

Clearly much progress has been made and new options continue to emerge. It is now important to integrate these approaches, set priorities, and turn the opportunities into on-ground actions. This is now the role and responsibility of the Murrumbidgee CMA (and in other regions of 56 similar groups and CMAs Australia- wide).

Summary: justice criteria to support defensible public participation

As noted in the report of a recent expert workshop convened by LWA in support of the implementation of the National Water Initiative *'Almost inevitably, with a range of community values and interests in play, there will be disagreement and conflict over environmental allocations. The question is how good process and good governance can reduce the potential for conflict or manage it well by ensuring that the decisions are defensible on a broad range of grounds'* (LWA 2006).

The auditors and reviewers, the NWC and the NRC support the principles of transparency and participation in planning generally, so are expected to applaud the use of justice criteria to assess the design and effectiveness of public participation and planning in water sharing and related conflicts.

Some ideas on criteria for judging effective public participation are given earlier. It is important to report positive progress to the auditors of planning processes, as described in the examples given above. Otherwise there is a danger that, in any all-embracing plan for water reform, the process of public participation and social learning, on which much progress has been made in the Murrumbidgee and elsewhere, could be sacrificed, with decision-making returned to a central bureaucracy.

References

- Agribusiness Taskforce (2000). The Murrumbidgee: Assessing the 'Health' of a Working River. The Report of the Expert Panel (T Hillman, J Koehn, D Woodside, D Thompson, D Mitchell), December 2000. NSW Department of Land and Water Conservation and Environment Protection Authority, 71pp.+ App.
- Beder, S. (2006). Environmental Principles and Policies. An Interdisciplinary Approach. Chapter 6, The Participation Principle, pp.105-121, UNSW Press, Sydney.
- Bowmer, K. H. (2003a). Learning from Existing Practice. Reflections on Developing a Water Sharing Plan. In Wilson B P and Curtis A (Eds), Agriculture for the Australian Environment. *Proceedings of the 2002 Fenner Conference*. Johnstone Centre, Charles Sturt University, Albury, pp. 201 - 222. <<http://life.csu.edu.au>>
- Bowmer, K. H. (2003b). Look after the Land and the Rivers: Reflections on Water Sharing. *28th International Hydrology and Water Resources Symposium*, 10 - 14 Nov 2003, Wollongong. The Institution of Engineers, Australia, Keynote Papers, pp. 26 - 33.
- Buchan, A. (2000). Murrumbidgee River Health Report Card Workshop. Outcomes, Conclusions and Recommendations. A Report on Input from the Technical Advisory Group. NSW Department of Land and Water Conservation, Murrumbidgee Region Technical Report No 01/02, 63pp.

CICL (2006). Environmental Management Plan < <http://env.colyirr.com.au/AER2006/>> (accessed 14 February 2007)

Cullen, P. (1997). *Conflicts Over Water? Paper presented to the Australian National Commission Irrigation & Drainage Conference*, Deniliquin, September 1997, 7pp.

Cullen, P. (2006). *Water Planning*. National Water Commission, 7pp.
<<http://www.nwc.gov.au/publications/docs/PeterCullenWaterPlanning.pdf>> Accessed 14 Feb 2007)

DEC (2004). *Project Summaries - 2004 Restoration and Rehabilitation Community Grants*, Department of Environment and Conservation <<http://www.environment.nsw.gov.au/grants/2004rrsummary.htm>> (Accessed 14 February 2007)

DIPNR (2005). *Bidgee Wetlands Get Watered*. Media release, Department of Infrastructure Planning and Natural Resources, Deniliquin, 26 September 2005
<http://www.dipnr.nsw.gov.au/mediarel/mm20050926_3168.html> (Accessed 14 February 2007).

Forests NSW (2006). *Rescuing Markeys Lagoon* by Sarah Chester, Bush Telegraph, Autumn 2006
<<http://www.forest.nsw.gov.au/bush/autumn2006/stories/18.asp>> (Accessed 14 February 2007).

Gray, I. (2005). *Does reason prevail? The analysis of social power relations in regional communities. Paper presented to the Community and Catchments Conference*, Charles Sturt University Wagga Wagga, 18 August, 2005, 18pp.

Hillman, T., Crase, L., Furze, B., Ananda, J., and Maybery, D. (2005). *Multidisciplinary approaches to natural resources management*, *Hydrobiologia*, 552, 99-108

Khan, S. (2006). *Feature project: Improved Seasonality of Flows through Irrigation Demand Management and System Harmonisation TM*. CRC for Irrigation Futures.
<<http://www.irrigationfutures.org.au/news.asp?catID=8&ID=264>> (Accessed 14 February 2007).

LWA (2006) *Water Perspectives. Outcomes of an Expert Workshop Scoping Social and Institutional Research Questions in Support of the Implementation of the National Water Initiative*. Environmental Water Allocations, pp.17-18.

MRC (2002). *Draft Water Sharing Plan for the Murrumbidgee Regulated Water Source*. Murrumbidgee River Management Committee. Minister for Fair Trading and Minister for Land and Water Conservation New South Wales, 64pp + App.

Mostert, E. (2003) (Ed.) *Public Participation and the European Water Framework Directive. A Framework for Analysis*. Interception Report of the HarmoniCOP Project – Harmonising COllaborative Planning. The European Commission, 47pp.

Murrumbidgee CMA (2006). *Improving the Management of Wetlands on the Murrumbidgee River Floodplain*
<<http://www.murrumbidgee.cma.nsw.gov.au/index.php?id=323>> (Accessed 14 February 2007)

MI (2006a). *Annual Report MIA Envirowise Pp16-19* <<http://www.mirrigation.com.au/ReportsAR/AR%2005-06/Complete%20Report.pdf>> (Accessed 14 February 2007)

MI (2006b). *Murrumbidgee River Reach. A Proposal to the Water Smart Australia Programme*, 15 June 2006. Murrumbidgee Irrigation and Murrumbidgee Catchment Management Authority, 45 pp.

MI (undated) *Murrumbidgee Irrigation Water Savings Projects*
<<http://www.mirrigation.com.au/BBS/FactSheet.htm>> (Accessed 14 Feb 2007)

Nancarrow, B. E. and Syme, G. J. (2001). *Challenges in implementing justice research in the allocation of natural resources*, *Social Justice Research*, 14 (4), 441-52.

NRC (2005). *Recommendations. State-Wide Standards and Targets*, NSW Natural Resources Commission, 142 pp.; *Guide to Using the Standard for Quality Natural Resource Management. A Guide for CMAs*. 40pp.

<http://www.nrc.nsw.gov.au/_documents/Guide%20to%20using%20the%20standard%20for%20quality%20NRM.pdf>(Accessed 14 February 2007)

NWC (2006) 2005 National Competition Policy. Assessment of Water Reform Progress. Chapter 2, New South Wales, pp. 2.1 - 2.72, National Water Commission, Canberra.

Paton, S., Curtis, A., McDonald, G. and Woods, M. (2004). Regional natural resource management: is it sustainable? *Australian Journal of Environmental Management*, **11**, 256-66.

Page, K., Read, A., Frazier, P., and Mount, N. (2005). The effect of altered flow regime on the frequency and duration of bankfull discharge: Murrumbidgee River, Australia. *River Research and Applications*, **21**, 1-12.

Pratt Water (2004). The Business of Saving Water. The Report of the Murrumbidgee Valley Water Efficiency Feasibility Project, Pratt Water, Campbellfield, Victoria, December 2004, 152 pp.

RGA (2006). Environmental Champions Program. An innovative Approach to Environmental Change Ricegrowers Association of Australia Inc., 14 August 2006.
<<http://www.environmentalchampions.rga.org.au/>> (Accessed 14 Feb 2007)

Richardson, A. (1983). Participation, pp.52-81. Routledge and Kegan, London.

Schultz, M. (2004). Fivebough and Tuckerbil Swamps: Wetlands that are Public Lands Managed for Nature Conservation by a Community Organisation. Wetlands Australia - National Wetlands Update 2004 < <http://www.environment.gov.au/water/wetlands/publications/wa12/swamps.html>> (accessed 14 February 2007).

SWC (2006). Environmental Management Plan 2006-2010, June 2006, State Water Corporation, Dubbo, pp.13-14; 19-20. < <http://www.statewater.com.au/aboutus/envmanpla.htm>> Accessed 14 Feb 2007)

Syme, G.J. and Nancarrow, B. E. (2002). Evaluation of public involvement programs: measuring justice and process criteria. *Water (Journal of the Australian Water Association)*, **29** (4), 18-24.

Syme, G.J. and Sadler, B. S. (1994). Evaluation of public involvement in water resources planning: a researcher –practitioner dialogue, *Evaluation Review*, **18**, 523-42.

Syme, G.J., Nancarrow, B.E. and McCreddin, J. A. (1999). Defining the components of fairness in the allocation of water to environmental and human uses. *Journal of Environmental Management*, **57**, 51-70.

Watts, R.J., Ryder, D.S., Chisholm, L. and Lowe, B. J. (2001). Assessment of Environmental Flows for the Murrumbidgee River. Developing Biological Indicators for Assessing River Flow Management. NSW Water Management Fund Project MB19/96/SW/RM, Johnstone Centre, Charles Sturt University, 323pp.