Journal of Hydrology 474 (2012) 29–37

Contents lists available at SciVerse ScienceDirect

Journal of Hydrology

journal homepage: www.elsevier.com/locate/jhydrol

South Australia's River Murray: Social and cultural values in water planning

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ARTICLE INFO

Article history:
Available online 25 April 2012

Keywords:
Water planning
Deliberative decision making
Participatory modelling
Indigenous water values
Australian water management

SUMMARY

The South Australian River Murray is at the end of the Murray–Darling Basin which spans four Australian states, and is reliant on upstream flow. Under the Murray–Darling Basin Agreement, South Australia has an annual entitlement of 1850 GL flow. In the recent debilitating drought, the Agreement was put 'on hold' while emergency sharing arrangements provided for critical human needs, with meagre supplies for any other consumptive use. The drought also impacted on environmental values already compromised by river regulation and the high levels of water consumption. Conducted during the policy development phase of a second water allocation plan, our research trialled three tools designed to assess economic, social and cultural values for the new plan. The first was a pilot social impact study of effects of changing water availability in the Murraylands. In the second, researchers used a participatory modelling tool conjunctively with multi-criteria analysis to identify community values relevant to the prioritisation of environmental assets in the context of water scarcity. The third tool addressed Indigenous cultural values associated with water. Results of trials demonstrate that identifying public and social values in water require a number of interactive and deliberative tools in order to engage the broad community in water planning. Of the three tools, the most innovative was the second tool as it facilitated deliberation about the relative importance of the environment and helped shift individuals from entrenched interest based positions to consensus on values in wetlands.

1. Introduction

The River Murray, part of the Murray–Darling system, flows in South Australia for some 500 km before passing through the Lower Lakes and Coorong wetlands to enter the sea at the Murray mouth. In this state, the River is managed through a series of nested plans under the *Natural Resources Management Act 2004* (NRM Act). Specifically, water is managed through a Water Allocation Plan for that part of the river defined as the 'Prescribed Watercourse' (Government Gazette notice, 1978). The area runs from the Victorian border and is defined by the 1956 flood boundary and includes the river, its channels, wetlands, floodplains and parts of two large lakes at the mouth.

Since the first lock on the River Murray built in 1922 at Blanchetown, numerous structures control its flow including barrages at the mouth which have converted a natural estuarine to a freshwater system in the Coorong (Gippel and Blackham, 2002). In more recent years this developmental paradigm has changed, with the impetus coming from awareness of environmental needs in the Murray–Darling Basin (Tan et al., 2012a,b).

This article documents the trial of planning tools in South Australia, and is part of a nationwide research project in water planning (Tan et al., 2012a, b). It is one of four trial sites, with two located in the Northern Territory and one in Queensland. The broader methodology for selection of the sites and conduct of research is outlined elsewhere (Mackenzie et al., this issue). The purpose of this article is to provide in parts one and two, a description of the planning context and planning issues in the Murray, and how that informed the selection of tools. Part three describes the specific research questions addressed by the three tools and discusses the results and limitations of the tools in this context.

Broader insights generated by the research appear in four other articles in this issue specifically on Indigenous engagement (Jackson et al., 2012a); trade-offs in planning (Mooney et al., this issue); how scientific knowledge informs community understanding of planning issues (Baldwin, 2012) and the continued challenges in legal and policy issues relating to water planning (Tan et al., 2012b).

2. The planning context

The planning area, as part of the Murray–Darling Basin, is subject to a complex legal and administrative regime that has evolved over 100 years to facilitate the sharing of water between the four Basin states. The quantity of water available within South Australia is largely a feature of available storage upstream as there are no water storages in the state and very little inflow from local rainfall

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http://dx.doi.org/10.1016/j.jhydrol.2012.04.010

Table 1
Water allocations per water-use-year for the River Murray Prescribed Water Course.

Use	Allocations of water endorsed on licences as at July 2008[a]
Irrigation	554.0 GL
Industrial	4.2 GL
Stock and domestic	6.8 GL
Recreational and environmental	22.9 GL
Metropolitan water supplies	650 GL (over a rolling 5 year period)
Country town water supplies	50.0 GL
Wetlands	15.8 GL
Environmental land management	21.3 GL

[a] *Note*: These figures can vary from year to year depending on interstate trade and other factors.

events. This limits the capacity of the state to buffer long droughts and has implications for provision of water for critical human needs and other consumptive use.

In our view, the Murray–Darling Basin Agreement is the most important legal and policy contextual factor in the study. The Agreement determines how the River is managed, and its resources shared, across the four states including Queensland, New South Wales, Victoria and South Australia. Under the Agreement, South Australia is entitled to a minimum annual flow (commonly known as entitlement flow) of 1850 GL, except during extreme drought years. This may change as a function of the *Water Act 2007* (Commonwealth) because it is likely that the Murray–Darling Basin Authority will reduce water for consumptive use across many parts of the Basin. Development of the first Basin Plan has been controversial and is expected to be finalised only at the end of 2012 (Tan et al., 2012a, b).

In an average year, around 75% of the water taken from the River Murray is used for primary production including horticultural, livestock and dairy industries (Government of South Australia, 2011). The remaining 25% is used for industrial, commercial, recreational, stock and domestic, and Metropolitan Adelaide and country water supplies. There are in excess of 4000 irrigators who source their water from the River Murray.

During the period of this research inflows into South Australia were well below the long term average, and the average for the 10 years since 1999 was significantly below this (see Table 1 and Fig. 1). This clearly indicates a long term dry cycle, where the annual average and annual median flows of River Murray water into SA were 6750 GL per annum and 4600 GL per annum respectively. Licensed irrigators in SA had the most secure allocation in the Basin and could typically expect to receive 100% of their allocation. However, in the years 2006–2010 irrigation allocations were restricted. The lowest allocation was 2% in July 2007 although it increased to a maximum of 32% in the same irrigation year. Allocations reached 62% at the end of the 2009–2010 water year (Department of Water, Land and Biodiversity Conservation, 2010). Since then the drought has broken and inflows into the River are at levels that have not been experienced since the early 1990s.

2.1. Institutional matters

The institutional framework is a vital part of planning, and can be overlooked by the inexperienced, to the detriment of the planning process and of plans themselves. Water allocation plans set the rules for allocation, use and transfer of water from prescribed water resources. They also identify activities that require a permit (e.g. building a dam, drilling a bore) and the share for environmental water. The South Australian Murray–Darling Basin Natural Resources Management Board (the Board) is responsible for preparation of the Plan for the South Australian River Murray. The Plan needs to comply with the broader Murray–Darling Basin requirements generally and will have to conform with the Basin Plan by 2019. The activities of the Board in developing the Plan are both supported and reviewed by the South Australian Department for Water. The Department administers sections of the NRM Act, supports the plan making process by the provision of technical and policy advice and administers the water licensing system. A number of other state Government entities have important responsibilities for the planning and management of different aspects of the River Murray.

2.2. Policy development in planning

The first Water Allocation Plan for the South Australian River Murray was released in 2002 (River Murray Catchment Water Management Board) and has undergone a number of minor amendments. This study took place within the policy development phase of a second generation planning process. Under the NRM Act at the time of this study, planning to amend an existing WAP, took place over four phases as detailed in Table 2 below.

Originally it was anticipated that the draft plan would be completed in 2010 however high level policy changes and the pressure on resources arising from the drought led to a deferral and a proposed new plan release date of 2014.

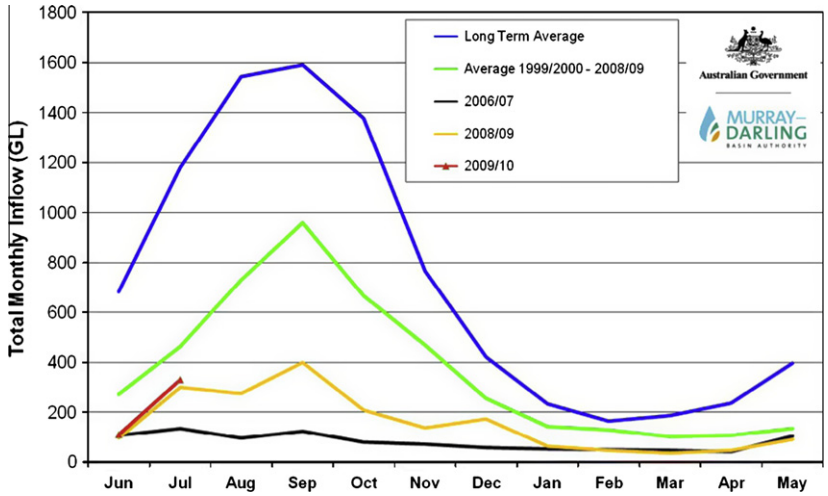

Fig. 1. Murray System Inflows (excluding Snowy and Menindee inflows) (MDBA, 2010). *Source*: Government of South Australia (2009).