

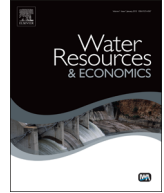


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Insights, lessons and benefits from improved regional water security and integration in Australia



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ABSTRACT

The Murray-Darling Basin (MDB) in Australia provides a leading example of a region that has established wide-ranging trans-boundary water agreements. The MDB extends into four states and one territory, and these states have disagreed continuously over water sharing since Federation in 1901. The first major trans-boundary water agreement was the 1915 River Murray Waters Agreement, which was followed a century later by the 2012 Basin Plan. One of the objectives of the Basin Plan is to reallocate 2750 GL from consumptive to environmental use in the MDB. Although the Basin Plan built on many other water reforms of the previous century, it does represent the most significant effort to date to estimate sustainable water use levels in the MDB and value the benefits and costs of various water reallocation scenarios. This study provides an overview of the major water policy reforms in the MDB, and reviews the identified benefits and costs of the 2012 Basin Plan. A number of insights and lessons are drawn throughout. Overall, the results signal that the quantified benefits of the Plan may outweigh the costs by up to three times. However, there are lessons to be learned from the extensive consultation, valuation and compensation paths that were adopted in Australia. It may not be possible for many other countries to implement such paths. Although Australia is on a path to sustainable water extraction, there is still much to be done and further policy will need to be flexible enough to allow further adaptation and innovation.

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1. Introduction

Water has been always been a source of conflict, and especially so in the context of transboundary water resources where water governance is shared by different countries, legal systems, populations etc. Policies that promoted unsustainable water consumption resulted in rivers running dry and water quality deterioration [1]. A lack of governance and cooperation in transboundary water management can have economic, environmental and social impacts. As such, a variety of commissions on transboundary waters have been established; for example, the United Nations Economic Commissions for Europe (UNECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) in 1992, with amendments in 2003 to allow accession for all United Nation members (which came into force on 6 February 2013).

There have been many institutions put in place over the last few decades for managing transboundary issues (e.g. [2]). However, there is confusion and lack of awareness about the benefits that may arise from improved transboundary water cooperation by many countries. As such, there is a growing demand by countries for quantitative information on the potential benefits of transboundary water cooperation.

The Murray-Darling Basin (MDB) in Australia provides an example of the potential benefits to be derived from implementing transboundary water reform, albeit over states within a single country. It has been used as an example in many analyses of the impacts of water scarcity (e.g. [3]). Water reform in the MDB has been a constant process over the past century. Such reforms have led to well developed water entitlement and allocation markets, and, as such, Australia provides a leading example, across the world, of water demand management using water markets [3–5]. Moreover, Australia inaugurated reforms in water demand management earlier than most other jurisdictions. While Australia began its reforms in the 1980s, it was not until the 1992 Earth Summit, in Rio de Janeiro, that there was a commitment amongst the international community to an increased focus on water demand management [6].

This paper provides an overview of the history of water reform in Australia, detailing the problems experienced due to lack of cooperation and coordination between states, and how various reforms and policies have been implemented to encourage coordination. It adds to the existing literature of water policy in the MDB by drawing out lessons to be learned from water policy reform. In particular this paper comments upon recent work conducted on water markets and the recent Basin Plan that was adopted in 2012. The benefits and costs of the Plan are reviewed in detail, with a heuristic assessment of the net benefits undertaken. It then concludes with a section summarizing some of the insights and lessons the international community can learn from the Australian situation.

2. Murray-Darling Basin

2.1. MDB background

The MDB is a large geographical area (1,061,469 km²) in southeastern Australia, whose name is derived from its two major rivers, the Murray River (2530 km long) and the Darling River (1472 km long). It drains around one-seventh of the Australian land mass, and is one of the most significant agricultural areas in Australia. The MDB covers four states and one territory (catchment area is shown in Fig. 1 [7]) in Australia. In particular, it spans most of the states of New South Wales, Victoria, and the Australian Capital Territory, and parts of Queensland (lower third) and South Australia (south-east corner). The River Murray travels through three states: New South Wales (NSW), Victoria (VIC) and South Australia (SA).

The MDB is an iconic area for agricultural production (it produces over one third of Australia's food supply and is known as Australia's 'food bowl'); ecological importance (e.g. Ramsar wetlands, up to 30,000 wetlands, 2442 key environmental assets); recreational significance and cultural values (home to 34 indigenous groups). 65% of Australia's irrigated land is located here, and it is home to over two million people [8]. There is a diversity of agricultural crops across the Basin. Horticulture dominates in SA, dairy in VIC and broadacre (rice, cotton) in southern NSW.

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