

Introduction

Democracy can be denied by complexity. This has happened to governance of the Murray-Darling Basin: current management processes are largely unintelligible to the general public because they have evolved bottom-up from within fragmented and competing jurisdictions. The citizenry has been disenfranchised and no governing authority carries the authority of a national mandate.

Your Basin Plan offers a unique opportunity and responsibility to claim that mandate by presenting a top-down and integrated perspective over the entire Basin. I urge Plan authors to strive for clarity of language to present policy alternatives and recommendations that can be understood by all interested Australians. Clear language will foster clear thinking and successful communication.

Responsibility extends beyond our borders. Water shortages are already a cause of international and inter-ethnic tensions in many parts of the world and those tensions are predicted to worsen during this century. Uniquely, Australia has one people inhabiting an entire continent. We are blessed with an opportunity to lift management of our heartland river system from poor to good. If we fail we shall offer a signpost to despair for people struggling with water resource issues in more difficult situations. If we succeed we shall offer a beacon of hope.

Monthly water resources report

MDBA should issue a monthly water resources, including accumulative totals:

- *Basin inflows. Surface and groundwater.*
- *Mouth outflow (see below)*
- *Environmental. Reserved for environmental assets—including those recognised under the Ramsar Convention—upstream of the estuary.*
- *Consumption (surface water and groundwater)*
 - *Agriculture*
 - *Urban, town and city*
 - *Rural, stock and domestic*
- *Evaporation losses*
- *Storage volumes, in gigalitres and as percentage of capacity*

Supporting appendices may provide detailed information for involved parties, but the report should be written as a snapshot overview for lay readers. The aim is to encourage and inform public

participation in system governance. The final report for each water year will lead MDBA's annual report to Federal Parliament.

Outflow at Mouth

Health of a river system is best measured at its estuary. This is particularly important under the high rainfall variances of southern Australia.

We can best protect the key environmental and productive resources of the Murray-Darling system if we maintain the Mouth in reasonable health. Conversely, if we fail to protect the estuary we will certainly fail in our primary responsibility to avoid "compromising the key environmental assets, key ecosystem functions, the productive base or key environmental outcomes of the water resource"¹

The most recent authoritative scientific review of the Coorong and Lower Lakes environment² recommends "the Murray-Darling Basin Authority (MDBA) should establish as a target, a median annual flow at the barrages of at least 3,800 GL". I support this recommendation and suggest that it should be tied to Basin inflow. Your issues paper calculates (page 9) 23,417 GL per year as "total average available surface water in the Basin". That figure approximates to the total given in other publications as the long-term average for Basin inflow. I recommend:

MDBA to accept responsibility for delivering each year at least 16% of the previous year's inflow to reach the Murray Mouth

This target figure is about one-third of average pre-settlement outflow (10,600 GL/year). Can we expect the estuary to survive with less?

Supporting comments.

- Existing reservoir infrastructure allows transition between current and previous year volumes
- Expression of Mouth outflow as a percentage of Basin inflow facilitates adjustment to future climate change, including altered relationships between rainfall and inflow
- Consumption allocations can be adjusted downwards from 100% in any year in which MDBA is not able to achieve its outflow target
- All categories of water users—including environmental and system outflow—share pain proportionally in dry years

¹ Issues Paper. Development of Sustainable Diversion Limits for the Murray-Darling Basin. Murray-Darling Basin Authority. November 2009.

² Engineering a Crisis in a Ramsar Wetland: the Coorong, Lower Lakes and Murray Mouth, Australia. Australian Wetlands and River Centre. The University of New South Wales. November, 2009.

- This system outflow philosophy can be mirrored for all tributary rivers, each of which would carry a percentage target calculated as its median contribution to achieve the overall system target
- Initially, the target volume may be measured at Goolwa Barrages, but should not be dependent upon continued existence of those structures

Keying of consumption to inflow

All water licences should be similarly expressed as a percentage of actual inflow. We need—in this land of droughts and flooding rains—to link water usage with what Nature provides and that need is sharpened by current CSIRO forecasts on global warming and reduction of rainfall.

On a complete system basis, each megalitre of licence entitlement equates to .0000042% of an median long-term annual inflow of 24,000 GL. Thus, an irrigator with a licence entitlement in 2009 of 30 ML/year (.000126% of inflow) could plan on using only 20 ML in a future year following one in which Basin inflow was recorded at 16,000 GL, but could use up to 40 ML in a year subsequent to an inflow of 32,000 GL. The same principle would apply to urban and rural users. Allocations would be depoliticized and predictable.

If tributaries are managed separately (see Outflow at Mouth, above), the median long-term annual inflow volume would be reduced by the corresponding figure for each tributary.

Headquarters, MDBA

MDBA should be headquartered at Goolwa.

This location would give physical expression to a national determination to manage the river system from its estuary. Many of our past failures can be traced to doomed attempts to govern from source.

Agricultural produce: export/domestic

The Basin is legitimately described as Australia's food bowl: a role that will increase in importance if current predictions about impending world food shortages are vindicated. However on an overall industry basis it is likely that up to two-thirds of Basin produce are currently exported even though it is irrational for our thirsty land to export water in products such as wine, cotton, etc that can be grown in wetter climates.

The Basin Plan should identify what proportion of agricultural produce in the Basin is currently exported and advise on the feasibility of distinguishing irrigation consumption between export and domestic crops.

Any decisions taken in the light of that advice will be a responsibility of Federal Parliament.

Equity

MDBA is necessarily an agent of change. Resistance to change is inevitable and will be strengthened by any perception that particular regions or industries are to be comparatively disadvantaged.

Basin Plan should accept a principle of equity: all changes to existing water rights and procedures will attempt as far as possible to share consequences equally between established water users

Population impacts

Irrigation within the Basin has been a rare and significant instrument in maintaining significant inland regional populations. Those population centres now feel threatened by proposals to reduce irrigation. The Basin Plan should address this problem.

Basin Plan should present an overview of population distribution within comparable river basins in other First World countries and critically examine linkages between irrigation volumes and population levels.

This examination may inform new initiatives to maintain and increase populations within the Basin. In comparison to crops and stock, people consume small volumes of water and the Basin may well be able to support many more people with less irrigation.

Salt and sedimentation

Salt is a greater threat to the Basin than drought. The 1999 Salinity Report³ estimates that salt export through the Mouth to the ocean will double to two million tonnes/year by 2100. As well as salt, we have discovered from the current drought that the Lower Lakes are threatened by Acid Sulphate Soils, formed by other sediments carried downstream.

Basin Plan should include an updated version of the Salinity Report to cover all sediments:

- *Source: natural or consumptive*
- *Volumes, pre-settlement and post-settlement, and anticipated rates of change*
- *Impacts of low/high flows, including impact of high inflow after a period of drought*

³ Murray-Darling Basin Ministerial Council. The Salinity Audit of the Murray Darling Basin. A 100-year perspective, 1999. ISBN 1 875209 85 9

➤ *Remediation options and costs*

Recent decisions and debates (eg. weirs, regulators, treatment of Acid Sulphate Soils, etc) have presented the Coorong and Lower Lakes as unfortunate and unnecessary natural features that waste a lot of water in evaporation. In fact, the Lakes are part of an integrated land formation that manages the final exit to the ocean of a major river system running through flat terrain at the end of an epic journey. We urgently require solid scientific study of their function and their vulnerabilities and this sedimentation report would be a first step.

Report scope

MDBA authority does not initially include the entire Basin. This restriction is a consequence of our history of state jurisdictions but is unlikely to continue. The advantages of mirroring the Basin as an integrated natural system with a corresponding unitary government authority will soon become evident and irresistible. The report should anticipate that development.

Basin Report should be scoped to include all water resources in the entire Murray-Darling Basin

Relevant affiliations, author

Vice-Chair	Goolwa to Wellington Local Action Planning Inc
Member	Lower River Murray Drought Reference Group
Committee	Milang Agricultural Bureau
Committee	Point Sturt Landcare Group