2

The Murray-Darling Basin

2.1 The Murray-Darling Basin covers over one million square kilometres of southeast Australia, 14 per cent of the country. It extends from just north of Carnarvon in Queensland to Goolwa in South Australia and just south of Creswick and Kilmore in Victoria.

2.2 It comprises 23 river valleys with climactic conditions ranging from rainforest regions, to mallee country, inland sub-tropical to arid and semi-arid land of the far west. The north is characterised by semi-arid and ephemeral river systems while the south is known for highly-regulated river systems fed from the Australian Alps.[1]

2.3 The Basin holds great significance for its Aboriginal peoples, who for thousands of years have depended on its natural resources as well as its cultural and spiritual importance.

2.4 The Basin has also made a significant contribution to Australia's social and economic development, with European settlement and farming practices commencing in the 1830s. The introduction of paddle steamers to the Murray in the 1850s followed by the extension of the railway system in the 1890s meant townships and intercolonial trade grew rapidly through this colonial period.[2]

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1 Department of Agriculture, Fisheries and Forestry (DAFF), *Submission 473,* p. 10; Murray-Darling Basin Authority (MDBA), *Guide to the proposed Basin Plan: Volume 2, Technical Background*, Canberra, October 2010, p. 10.

2 MDBA, *Guide: Volume 2,* pp. 16-17.

2.5 The Basin is now home to 2.1 million people and a further 1.3 million people are dependent on its water supply. It is responsible for around 40 per cent of the nation's irrigated production and produces 90 per cent of the nation's cotton, 56 per cent of its grapes, 42 per cent of its nuts and grapes and 32 per cent of the nation's dairy, all from 14 per cent of the continents land mass.[3]

2.6 Inevitably in a region of such productivity, efficient water management is key for irrigators and governments alike and the process of water management improvement has always been part of the Murray-Darling Basin's success. The need for further water law reform has been driven by different state water law management systems and an over-allocation of water entitlements by states in some catchments.

2.7 While there has been bipartisan support for some reform from the Commonwealth and state governments and across political parties since the mid 1980s, it has also been a time characterised by delays and mostly inaction on the problem of addressing over-allocations. In NSW, however, some ground water and other entitlements have been slashed. Likewise in Victoria.

2.8 Communities are supportive of the need for ongoing water management improvements. Throughout this inquiry, the Committee has heard disagreement and disapproval of the MDBA proposals and how they were developed and communicated. However, the benefits of providing acceptable certainty and a more streamlined management approach to water access were widely accepted.

2.9 While there is a clear acceptance of the need to continue working towards a more sustainable healthy river system that can support stable communities and efficient agriculture, opinions differed on the scale of change required, who should bear the costs, and the timeframe for changes.

2.10 This chapter addresses the history of reform in the Basin, why continued change is necessary, and the 'reform fatigue' impacting on basin communities.

3 DAFF, *Submission 473,* p. 10. MDBA, *Guide: Volume 1,* p. 21.

Community and economic profile

Population

2.11 At the time of the 2006 census, 3.4 million people living in or near the Basin were directly reliant on Basin water. Of this figure, 2.1 million live within the Basin and 1.3 million were living in towns around the Basin, including Adelaide (1.06 million people). This represents 17 per cent of the Australian population.

2.12 About half (48 per cent) of the Basin population lives in 19 large urban centres. These centres experienced the highest rates of population growth, although overall the Basin grew by three per cent between the 2001 and 2006 census (national growth was six per cent). Small towns and rural localities comprise 30 per cent of the Basin population and the remaining 22 per cent live outside a population centre.

2.13 Canberra is the largest urban centre in the Basin, with a population of 356 120 (including Queanbeyan), representing 17.7 per cent of the total Basin population. The next largest Basin centres are Greater Bendigo (96 500) and Toowoomba (96 100).

2.14 The majority of the 69 500 Aboriginal Australians living in the Basin live in New South Wales.[4]

Economic contribution of Basin agriculture

2.15 Despite nearly half the Basin population living in urban centres, the vast majority of land use in the Basin (84 per cent) was for agriculture (see Table 2.1).

2.16 The gross value of agricultural production (GVAP) in Australia in the year 2008-09 was $42 billion, or 2 per cent of gross domestic product (GDP).[5] The Basin produces a substantial per centage of this, and thus makes a significant contribution to the national GDP and the nation's food security:

4 Unless otherwise cited, all statistics in this section taken from: Australian Bureau of Statistics (ABS), Australian Bureau of Agriculture and Resource Economics (ABARE) and the Bureau of Rural Sciences (BRS), *Social and Economic Context for the Murray-Darling Basin*, MDBA, *Technical Report Series: Basin Plan: BP02*. Canberra, September 2009. pp. v-6.

5 DAFF, *Submission 473,* p. 6.

> The basin generates about 39 per cent of the national income derived from agricultural production. Agriculture contributed approximately $14.6 billion to the basin economy in 2008–09. The basin economy (gross regional product) was approximately $59 billion in 2000–01, representing about 8 per cent of Australian GDP.[6]

2.17 The primary water use within the Basin is for irrigated agriculture, accounting for 80 per cent of consumptive water use. The Department of Agriculture, Fisheries and Forestry reports:

> Irrigated industries in the basin include broadacre crops such as rice and cotton, horticulture and vegetable crops, and irrigated pasture for dairy and hay. In 2008–09, cotton accounted for the highest proportion of irrigation water used (23 per cent), followed by cereal crops for grain or seed (20 per cent) and pasture for grazing (15 per cent).[7]

Table 2.1 Land Use, Murray Darling Basin, 2008

Land Use	Hectares	Percent %
Agriculture total	88,911879	83.7
Irrigated Agriculture	*2,463,174*	*2.3*
Dryland Cropping and horticulture	*13,216,120*	*12.4*
Grazing native or modified pastures	*73,232,585*	*69.0*
Production and Plantation Forestry	3,413,900	3.2
Conservation and natural environments	11,041,052	10.4
Intensive uses (e.g. urban)	1,531,516	1.4
Mining and waste	55,100	0.1
Water (lakes and rivers)	1,246,687	1.2
Total Murray-Darling Basin	*106,200,134*	*100.0*

Source Bureau of Rural Sciences, 2008, from MDBA Technical Report Series: Basin Plan: BP02, p. 9.

6 DAFF, *Submission 473,* p. 10.

7 DAFF, *Submission 473,* p. 10.

2.18 Nationally, the gross value of irrigated agricultural production (GVIAP) in 2008-09 was 'just under $12 billion, accounting for approximately 29 per cent of the total GVIAP.' The Basin's GVIAP in 2008-09 was $4.3 billion, 36 per cent of the national GVIAP (due to drought, a fall from 53 per cent of national GVIAP in 2000-01) and 10 per cent of Australia's GVIAP.

Table 2.2 Basin commodities that contributed most to GVIAP

Commodity	Dollars $ (million)	Percent %
Fruit and nuts	1033	24
Dairy production	791	18
Grapes	598	14

Source DAFF, Submission 473, p. 10.

Employment in the Basin

Table 2.3 Key employment sectors in the Basin

Sector	Percent % of employed persons
Wholesale and retail trade	14.3
Public administration (largely based in Canberra)	11.7
Agriculture	10.8
Education and training	10.6
Manufacturing	9.1
Healthcare and social assistance	8.1

Source Australian Bureau of Statistics, 2006 Census.

2.19 The remaining 35 per cent of employment is spread across industries such as construction, tourism, service provision (arts, administrative, professional, housing, postal and telecommunications) and mining.[8]

2.20 The impact of Basin Plan on employment in the Basin is discussed in Chapter 3.

8 MDBA, *Technical Report Series: Basin Plan: BP02*, p. 42.

Governance of Basin water resources

2.21 The Basin takes in multiple jurisdictions, including the Commonwealth, 140 local government areas (LGAs), four states and the Australian Capital Territory (ACT).

Table 2.4 Proportion of the four states and the ACT included in the Basin

Sector	Percent (%) within Basin	Percent (%) of Basin population	No. of LGAs
Australian Capital Territory	100	16.1	-
New South Wales	75	38.7	69
Queensland	15	10.8	27
Victoria	60	28.7	31
South Australia	7	5.6	12

Source MDBA Technical Report Series: Basin Plan: BP02, p. 42.

2.22 This means that the governance of Basin resources requires high-level government negotiation and cooperation.

History of reform in the Basin

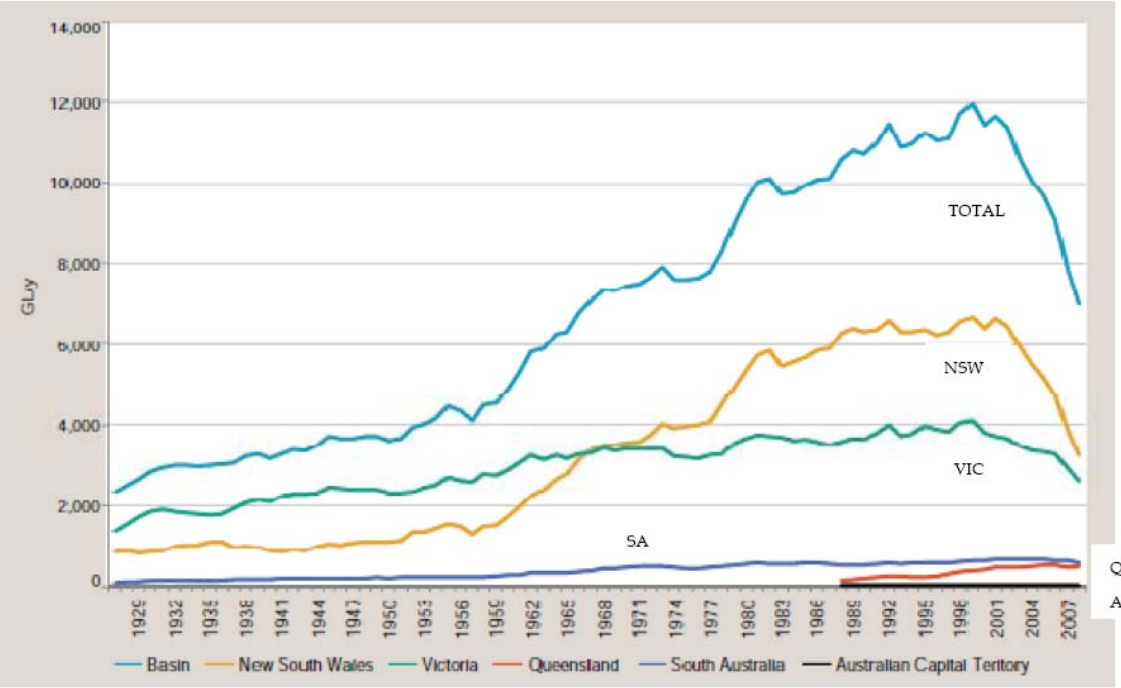
2.23 The first inter-governmental agreement on the Murray River was signed by the Commonwealth, New South Wales, South Australian and Victorian Governments in 1914. It was intended to be a dispute resolution agreement and established the River Murray Commission (RMC). The RMC was responsible for establishing a works program to be carried out by the states and establishing and implementing a water sharing formula.[9]

2.24 In reality, the powers of the RMC were limited – it was unable to deal with tributaries of the river, and it did not gain the power to monitor water quality until 1981. During this time, water extraction increased from 3 000 GL (1920) to 11 000 GL (1990s).[10]

9 B. McCormick and J. Tomaras, *Overview of Water Act*, Parliamentary Library unpublished memorandum, 28 October 2010.

10 MDBA, *Guide: Volume 1,* p. 26.

Figure 2.1 Growth in water use in the Murray-Darling Basin



Source *MDBA, Guide to the proposed Basin Plan: Volume 1, Canberra 2010, p. 27*

2.25 By the time of the inaugural Murray Darling Basin Ministerial Council meeting in 1985, salinity was a serious issue for the Murray River.

2.26 In 1987 the *River Murray Waters Agreement* was amended to become the *Murray-Darling Basin Agreement* and signed by the Commonwealth, New South Wales, South Australian and Victorian governments. This agreement was replaced by a new *Murray-Darling Basin Agreement* in 1992. Queensland became a signatory in 1996 and the Australian Capital Territory in 1998. Ratifying legislation has been passed through the parliaments of all participating governments.[11]

2.27 The Council of Australian Governments (COAG) agreed to a *Water Resources Policy* in February 1994, setting a framework for water industry reform which, under the National Competition Policy, among other matters:

- recognised the need to address widespread natural resource degradation through measures to address the economic, environmental and social implications of future water reform;

11 Murray-Darling Basin Agreement, background, <mdba.gov.au/about/governance/murray-darling-basin-agreement>, accessed 4 May 2011.

- introduced consumption-based pricing of water based on full-cost recovery;
- established a system of water entitlements and trade, including across state borders; and
- allocated water to the environment.[12]

2.28 In 1997 the MDB Ministerial Council agreed to cap the bulk of surface-water diversions to 1993-94 levels in an attempt to limit the increasing extraction of water from the Basin. An annual assessment is undertaken each year to determine progress by each state and territory against the cap.

2.29 A number of other projects and agreements took place during this time, including:

- creation of the Natural Heritage Trust to fund environmental projects (1998);
- a COAG agreement for a *National Action Plan on Salinity and Water Quality* (2000);[13]
- establishment of the public company *Water for Rivers* by the Commonwealth, New South Wales and Victorian governments to achieve environmental flows for the Snowy (212 GL) and Murray rivers (70 GL) (2003);[14]
- establishment of *The Living Murray* program (2004).

2.30 In 2004, COAG agreed to the National Water Initiative (NWI). Under the NWI governments agreed to:

- prepare water plans with provision for the environment;
- deal with over-allocated or stressed water systems;
- introduce registers of water rights and standards for water accounting;
- expand the trade in water;
- improve pricing for water storage and delivery; and

12 Council on Australian Governments Communiqué, *Water Resource Policy: Attachment A,* 25 February 1994, <coag.gov.au/coag_meeting_outcomes/1994-02-25/docs/attachment_a.cfm>, accessed 4 May 2011.

13 B. McCormick and J. Tomaras, 'Overview of Water Act', Parliamentary Library unpublished memorandum, 28 October 2010.

14 Water for Rivers, *Submission 408*. Discussed further in Chapter 5.

- meet and manage urban water demands.[15]

2.31 In 2006, the Commonwealth Government commissioned the Commonwealth Scientific and Industrial Research Organisation (the CSIRO) to undertake a thorough assessment of water resources in the Murray Darling Basin. As a result of this assessment, in 2007, the then Prime Minister, the Hon. John Howard MP, announced a $10 billion *National Plan for Water Security* which led to the introduction of the *Water Act 2007* (the Act).

2.32 The Act was passed in 2007 without the agreement of the Basin states to transfer their powers, leaving the Commonwealth to rely only on its own constitutional powers.

2.33 The Act gives the Commonwealth additional powers over state water planning, including the establishment of the Murray-Darling Basin Authority (transferring funding from the Murray Darling Basin Commission) and the establishment of the Commonwealth Environmental Holder, as agreed by the Basin state and territory governments through COAG and other intergovernmental agreements on the Basin.

2.34 In 2008 the then Prime Minister, the Hon. Kevin Rudd MP, successfully negotiated with the Basin states to refer their relevant constitutional powers to the Commonwealth and the Act was amended accordingly with the support of the major parties.

2.35 The change of government in 2007 also saw the *National Plan for Water Security* replaced by the $12.9 billion *Water for the Future* program. This program continues Commonwealth commitments to invest in infrastructure efficiency ($5.8 billion) and the purchase of water entitlements for the Commonwealth Environmental Water Holdings ($3.1 billion).

2.36 In 2009, in its second Biennial Assessment, the National Water Commission found that whilst progress in most areas was significant, very little progress has been made to address over-allocated or stressed water systems and concluded that this central requirement of water reform will not be met by the agreed 2014 deadline.[16]

15 COAG, Communiqué, 29 August 2003, <coag.gov.au/coag_meeting_outcomes/2003-08-29/docs/coag290803.pdf>, accessed 4 May 2011.

16 National Water Commission, *Second biennial assessment of progress in implementation of the National Water Initiative*, Canberra, September 2009.

Water Act 2007

2.37 The *Water Act 2007* (the Act) is the outcome of negotiations between the Commonwealth, the states and the ACT recognising the need for a Basin-wide management model.

2.38 While it is not in the terms of reference for this inquiry, the Committee heard extensive concerns about the Act and its role, primarily that it does not take adequate consideration of a 'triple bottom line' of social, economic and environmental needs.

2.39 The National Irrigators Council summarised these views:

> Irrigators are, and have been, willing to play their part in the water reform process to ensure we have healthy ecosystems, sustainable food production and strong regional communities in the Basin. One of the reasons that irrigators have been supportive of the water reform process is the National Water Initiative's prescription that management of surface and groundwater resources should "optimise economic, social and environmental outcomes". This is replicated in the objectives of the Water Act 2007 (at 3 c) but is not reflected in Section 21 of the Act and as such, neither is it a feature of the Guide.
>
> NIC believes that if we are to have a truly inclusive reform process that optimises environmental, social and economic outcomes, there must be trade-offs for all three. The Act and the Guide give primacy to the environment to the detriment of social and economic outcomes and as such we believe they fail our communities and the nation.[17]

2.40 The Committee was told that the Act was drafted relying on international environmental agreements, because these were the constitutional powers upon which the Commonwealth depended when Victoria refused to refer powers.[18] It was put to the Committee that such a scheme is unlikely to occur:

> the difficulty here is that this has already been tried and the Water Act is a product of a failure to agree on a cooperative scheme in the past. To go down that path you would have to hope that

17 National Irrigators Council, *Submission 189,* p. 3.

18 Mr Paul Kildea, Research Fellow and Director, Federalism Project, Gilbert and Tobin Centre of Public Law, University of New South Wales, *Transcript of Evidence*, Canberra, 23 March 2011, p. 4.

> agreement could be reached when it proved impossible some years prior.[19]

2.41 Evidence from Professor George Williams and Mr Paul Kildea of the University of New South Wales indicated that without state cooperation, there is unlikely to be a way to amend the Act to give more weight to the 'triple bottom line' approach without exposing it to challenges in the High Court.[20] The Minister for Sustainability, Environment, Water, Population and Communities, the Hon Tony Burke MP, has stated in the Parliament:

> Part of the problem in maintaining consensus on these issues has been uncertainty in the community and around the parliament about whether the Water Act does in fact demand the plan adopt a triple bottom line approach of taking into account environmental, social and economic impacts of reform. The MDBA has been reported as saying that the act requires a focus on environmental issues first, with limited attention to social and economic factors. For this reason I sought legal advice from the Australian Government
>
> Solicitor to determine whether the interpretations referred to publicly by the MDBA matched the requirements of the act. I also stated here in the House that following receipt of the advice I would make it public. This morning I received the advice. It was made available to the opposition, Greens and Independents earlier today and I now table the advice. Broadly, the advice outlines that the Water Act:
>
> - gives effect to relevant international agreements,
> - provides for the establishment of environmentally sustainable limits on the quantities of water that may be taken from basin water resources,
> - provides for the use of the basin water resources in a way that optimises economic, social and environmental outcomes,
> - improves water security for all uses, subject to the environmentally sustainable limits, maximises the net economic returns to the Australian community.
>
> Much has been made of the international agreements which underpin the Water Act and it has been suggested that these agreements prevent socioeconomic factors being taken into

19 Prof. George Williams, University of New South Wales, *Transcript of Evidence*, Canberra, 23 March 2011, p. 4.

20 Prof. Williams, *Transcript of Evidence*, Canberra, 23 March 2011, pp. 4-5.

> account. In fact, these agreements themselves recognise the need to consider these factors.
>
> The act specifically states that in giving effect to those agreements, the plan should promote the use and management of the basin water resources in a way that optimises economic, social and environmental outcomes. It is clear from this advice that environmental, economic and social considerations are central to the Water Act and that the Basin Plan can appropriately take these into account. I do not offer the advice as a criticism of the MDBA. What is important now is how the MDBA now responds to this legal advice.
>
> I trust the issuing of the advice provides a level of confidence to members of parliament that it is possible to provide sensible and lasting reform of the Murray-Darling Basin within the current structure of the Water Act. Such reform needs to look at a suite of measures. Investment in all forms of water infrastructure needs to take place. This includes centralised irrigation infrastructure, on-farm infrastructure and works, and measures to more efficiently and effectively manage our environmental assets. The purchase of water allocations through the market will need to continue and this must only be from those who have chosen to put all or part of their allocation onto the water market. Where possible, with the leadership of the various irrigation authorities, strategic projects of rationalisation to avoid stranded assets and better target limited water supplies must be encouraged.[21]

2.42 The Committee understands that the Act is a matter of concern for many. However, a focus on the possible amendment of the Act is a distraction from the core issue of achieving a healthy and sustainable Basin.

2.43 The Committee makes no recommendations regarding the Act. However, through more transparent and accountable governance and a clear implementation plan, the Committee believes that a Basin Plan that balances the needs of the community and the economy with the needs of the environment can be achieved. No society can wantonly destroy the essential balance between social, environmental and economic outcomes.

21 House of Representatives, *Official Hansard*, 25 October 2010, pp. 1306-7.

2.44 The Senate Standing Committees on Legal and Constitutional Affairs is undertaking a detailed inquiry on the Act and the Committee awaits its findings with interest.[22]

Reform fatigue in the community

2.45 'Reform fatigue' is one of the major issues facing the adoption of a Basin plan within the community. Many individuals who have been through reforms involving lengthy negotiations over decades told the Committee that they were exhausted by the continuous reform and being asked to undertake yet more, particularly when the necessity of further reforms have not been adequately explained.

2.46 Reform fatigue is compounded by the previous decade of drought, and the release of the Guide coinciding with record rain, and in some cases, devastating flooding.

2.47 While a coordinated national approach is necessary in Basin water management, some of the individuals living with the reforms understandably do not see proposed reforms in this context. Instead, they feel the imposition of yet another level of bureaucracy, which is already mistrusted.[23] Transparent, accountable governance at all levels is essential if these perceptions are to be addressed.

2.48 Reform fatigue is an issue that was raised with the Committee throughout the Basin. Improvements to water management and infrastructure, water trading policy, and the rapidly escalating costs of water has resulted in massive on-farm water savings and higher productivity. However, as Ms Louise Burge puts in her submission:

> the long term ramification of continued cumulative social and economic impacts on regions, from Government reform or political programs is real. There is clearly 'reform fatigue' in regional Australia. This is having a permanent detrimental impact on current and future economic investments, the social capital and future employment planning. Reform fatigue is leaving a lasting legacy of mistrust of Government programs and policies.[24]

22 For more information see, accessed 9 May 2011. <aph.gov.au/Senate/committee/legcon_ctte/provisionswateract2007/index.htm>

23 See for example, Glen Andreazza, *Submission 273.*

24 Louise Burge, *Submission 496*, p. 92.

2.49 Alongside reform fatigue, evidence was also received about other levels of 'fatigue' within communities which compound the impact of a Basin Plan that reduces diversions. In a survey undertaken by Regional Development Australia, Far West NSW it was found:

- We discovered extensive "stakeholder-fatigue" – lots of consultation for public issues but with associated claims of not much listening and very little direct action observed as a result.
- We discovered "volunteer-fatigue" – lots of expectations for communities to perform more tasks, with fewer financial and staff resources, and very little thanks. It was expressly mentioned in most of our region's urban centres that the ageing volunteers in the community had no one 'to pass on the baton to' (ie youth not inclined to become involved in volunteering).[25]

2.50 It was also put that:

> you can add change to that reform fatigue. Also, the rate of change that has occurred within our rural communities over the last decade has been extraordinary, whether it has been environmental, regulations or whatever. People get to a point where it is difficult to adjust any further.[26]

2.51 These comments reflect what the Committee heard across the Basin from a wide range of stakeholders. It does not mean that further change is impossible to achieve, but it does need to be managed with an appreciation of what communities have already been through and achieved.

2.52 The Australian Dairy Industry Council (ADIC) is right to note that:

> successful reform cannot be unilaterally imposed. It requires close cooperation between all parties to develop a common understanding of the need for (and likely impact of) change, the alternative pathways to reform and the trade-offs associated with different options.
>
> The Basin Plan will be an important element in this process of change and reform. However, the ADIC does not see that the Guide, as currently drafted, provides a base from which the Authority can develop a balanced plan that will help build a better, more sustainable Basin.[27]

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25 Regional Development Australia (RDA) Far West NSW, *Submission 493,* p. 23.

26 Craig Hart, Rural Adversity Mental Health Program, Centre for Rural and Remote Mental Health, University of Newcastle, *Transcript of Evidence,* Dubbo, 16 February 2011, p. 45.

27 Australian Dairy Industry Council, *Submission 196,* p. 4.

2.53 Future planning must take these factors into account, both in terms of communicating the need for change and in setting timeframes and structural adjustment measures. This is further discussed in Chapter 3.

Case study 2.1 Reform fatigue in the Namoi

In New South Wales, the impact of water reforms in general has been greater for groundwater and surface water diversions where the level of development has been the greatest. An example of how reform fatigue has affected communities is within the Namoi region.

Namoi Councils make the point in their submission that the Namoi region is not foreign to water reform and have played an active and valuable role in contributing to the development of an environmental flow policy, water quality objectives, farm dams policy, floodplain harvesting policy, water sharing plans and the National Water Initiative the over the last 15 to 20 years.[28]

At a hearing in Gunnedah the Committee heard that after several years of groundwater reform, 2005-06 saw the introduction of Achieving Sustainable Groundwater Entitlements (ASGE) which at the time was to be a "once and for all solution to groundwater aquifer use in inland NSW".[29] The program resulted in entitlement holders within the region losing 60 per cent of their entitlement, based on a reduction of sustainable yield. Within five years of the ASGE, and during the period of time for adjustment, the MDBA introduced new terminology of Sustainable Diversion Limits (SDL) and proposed a further 13 per cent reduction in entitlement.[30] Of the valleys in NSW included as part of the ASGE program, none had cutbacks in the magnitude of those in the Namoi region.

Manuka Chaff states in its submission that Zone 1 of the Upper Namoi lost the majority of its water allocation to the NSW State Government reforms, now the Guide proposes further reductions to the water remaining.[31]

In his evidence to the Committee Mr Kahl of Namoi Water, notwithstanding reductions already experienced in the Namoi, questioned whether the extra 4½ percent (increasing the total from 83 percent to 87½ per cent take of water flow by water managers) would have a positive effect on water efficiency and the management of environmental assets.[32]

A survey conducted by the NSW Farmers' Association showed that 74 per cent of respondents indicated that they had already seen a reduction in their entitlement as a result of previous Government programs such as Water Sharing Plans and Groundwater Caps, with a 35 per cent indicating that they had experienced cuts of more than 60 per cent.[33]

Communities are dealing with degrees of reform fatigue throughout the Basin, and furthermore there is a danger of these negatively affecting future generations of irrigators and farmers. As a witness in Deniliquin stated, "speaking from a next-generation perspective, it is really hard for anyone under the age of 30 to envision what their lifestyle might be and whether or not they want this lifestyle. There is a significant problem of policy fatigue... I remember my father attending meetings and going to these things to learn about what was happening... I think people just need sensibility in the approach. They also need to consider that this needs to be a very long term plan."[34]

In its 2010 Synthesis Report, Marsden Jacob provides an analysis of the Namoi region which states that water dependence in the Namoi is high, due to the importance of irrigated cotton to the region. As agriculture is such a large employer, any impact to that sector also will take a toll on the next largest regional employment sectors: retailing; and health and community services. Reduced

28 Namoi Councils, *Submission 517*, p. 3.

29 New South Wales Irrigators' Council, *Submission 195*, p. 19.

30 Mr Brown, Namoi Councils Water Working Group, *Transcript of Evidence*, Gunnedah, 14 February 2011, p. 1. See also, New South Wales Irrigators' Council, *Submission 195*, pp. 18-19.

31 Maunka Chaff Pty Ltd, *Submission 225*, p. 1.

32 Mr Kahl, Namoi Water, *Transcript of Evidence*, Gunnedah, 14 February 2011, p. 17.

33 NSW Farmers' Association, *Submission 485*, p. 52.

34 Ms Morona, Southern Riverina Irrigators, *Transcript of Evidence*, Deniliquin, 24 January 2011, p. 50.

water availability because of drought has significantly reduced economic activity in the region over the past five years.[35] Marsden Jacob go on to say, "the most immediate issue for the region at present is the potential for business recovery following the drought. The economic prospects for irrigated cotton are strong, but those prospects cannot be realised without water. After several years of low incomes, those irrigators with high debt levels may struggle to recover from the drought."[36]

Despite reform fatigue throughout the region, Mr Brown sees that, "our experience in the Namoi is that there is an opportunity with properly targeted programs for government to have a win-win result for irrigators, government, the basin and catchment communities."[37]

Whilst visiting the region the Committee met with local Namoi irrigators and it was very clear the emotional toll continuous reform had taken on the region and the community.

The need for continued water reform

Current governance arrangements

2.54 The current management of water resources in the Basin is a result of the intergovernmental agreements outlined above. The Basin Plan does not re-write these intergovernmental agreements as some have claimed,[38] but it is a result of these negotiations and the vehicle for delivering their agreed outcomes.

2.55 Figure 2.2 outlines the interrelationship between Commonwealth and state and territory agencies responsible for implementing the Basin Plan.

2.56 The Water Act requires the Commonwealth Government to establish a whole of Basin Plan. The Murray-Darling Basin Authority, a Commonwealth statutory authority, is charged with developing a proposed Basin Plan for consideration of the Commonwealth Water Minister and ultimately the Parliament.[39]

2.57 The role of the MDBA is to prepare a draft Basin Plan (referred to as the proposed Basin Plan) for consideration by the Commonwealth Minister responsible for administering the Water Act. The Minister may choose to adopt this proposed Basin Plan or direct the MDBA to make changes. Once the Minister adopts the proposed Basin Plan, it is to be tabled in

35 Marsden Jacob Associates, *Economic and social profiles and impact assessments for the Murray-Darling Basin Plan – Synthesis report*, July 2010, p. 109.

36 Marsden Jacob Associates, *Economic and social profiles and impact assessments for the Murray-Darling Basin Plan – Synthesis report*, July 2010, p. 110.

37 Mr Brown, Namoi Councils Water Working Group, *Transcript of Evidence*, Gunnedah, 14 February 2011, p. 3.

38 Louise Burge, *Submission 496,* p. 6.

39 The Act, Part 2, Division 1, Subdivision E.

Parliament. The Parliament is ultimately responsible for deciding whether the Basin Plan is made through its ability to disallow the document.[40]

2.58 The primary vehicle for achieving the objectives of the Basin Plan is the identification of sustainable diversion limits (SDLs) based on environmental water requirements. The amount of water that can be diverted in each catchment, as set by the state water resource plans, must not exceed the SDL set in the Basin Plan. Once the plan has passed through the Commonwealth Parliament, the SDLs will not come into effect until water sharing plans are made. As it currently stands, this means that the permitted diversions in Basin catchments will not be affected until 2014 with the exception of Victorian catchments where the new plans are due in 2019.[41]

2.59 The Water Act also established the Commonwealth Environmental Water Holder (CEWH), a statutory position with responsibility for managing the Commonwealth's portfolio of water entitlements. The CEWH is required to use these entitlements in accordance with the Environmental Watering Plan as set out in the Basin Plan.[42]

2.60 The states retain responsibility for planning and management of water resources providing it is consistent with an overarching set of rules within the Basin Plan. The Commonwealth is not responsible for managing water at the valley scale. Catchment water planning and annual allocation decisions remain the responsibility of state and territory governments.

2.61 However, the Commonwealth is responsible for both accrediting state plans and auditing their implementation through the National Water Commission.[43]

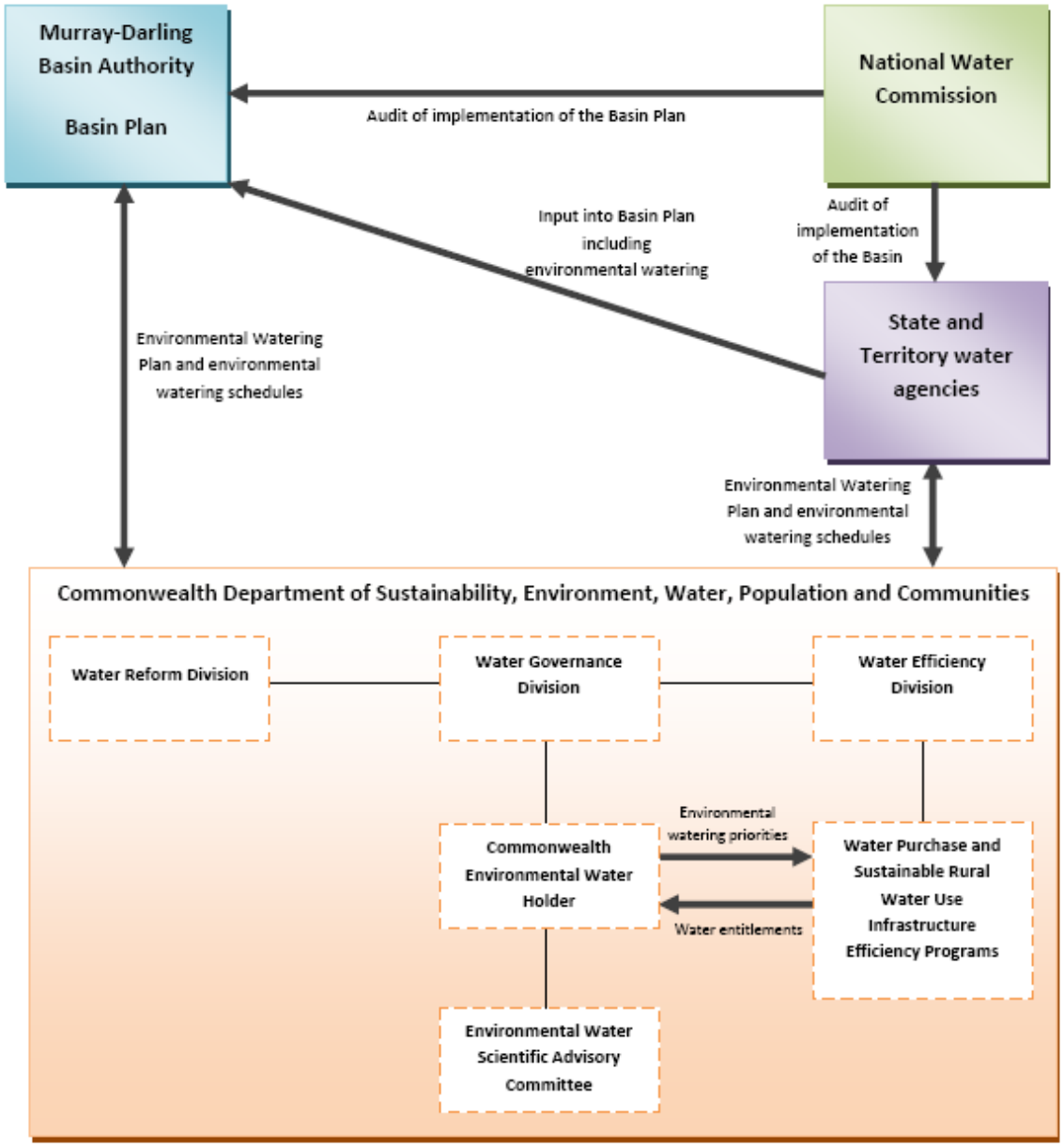
40 The Act, Part 2, Division 1, Subdivision E.

41 The Act, Part 2, Division 2.

42 The Act, Part 6.

43 The Act, Part 2, Division 2 and Part 3.

Figure 2.2 Current governance arrangement responsibilities



2.62 Sound governance arrangements are essential to ensuring that the management of Basin water resources is transparent, responsive, and fulfils the obligations of the various intergovernmental agreements on managing Basin water resources.

2.63 The Committee received widespread evidence that the current governance arrangements are not transparent or accountable, particularly those falling within Commonwealth responsibilities. Governance arrangements are further considered in Chapters 5 and 6.

Governance reform

2.64 Continued water reform within the Murray-Darling Basin is necessary to ensure that the Basin is managed in a sustainable way that looks to the long-term future of viable, and thriving, communities. Despite decades of reform and the development of detailed water sharing plans (WSPs), basin water resources continue to be over-allocated and overused in some areas.

2.65 The National Water Commission (NWC) 2009 biennial assessment, of progress in implementing the National Water Initiative found that water sharing initiatives have not been aligned to over-allocation and overuse.[44] Therefore many water recovery initiatives have not been linked to sustainable extraction targets based on the best available science.

2.66 The NWC further found that because WSPs had not adequately identified over-allocation and overuse, entitlement holders are unable to invest efficiently, being unaware of sustainable extraction limits and the full capability of their regions.[45]

2.67 This is despite multiple COAG agreements over decades recognising the need to address over-allocation and provide a comprehensive Basin governance approach. The failure of these agreements to be implemented effectively is why the 2007 reforms were necessary.

2.68 In 2007, when announcing the *National Plan for Water Security* which led to the current round of reforms, the then Prime Minister John Howard MP said:

> The CSIRO estimates that by 2020, average annual flows could decline by about 15 per cent due to climate change, recovery from bushfire, farm dam and plantation expansion and increasing use of groundwater. All parties must recognise that the old way of managing the Murray-Darling Basin has reached its use-by date. The tyranny of incrementalism and the lowest common denominator must end.
>
> ...
>
> We could muddle through as has occurred in the past, but frankly, that gets us nowhere. Without decisive action we face the worst of both worlds. The irrigation sector goes into steady but inevitable

44 National Water Commission, 2009, *Australian Water Reform 2009: Second biennial assessment of progress in implementation of the National Water Initiative.* Canberra. p. 88, 98.

45 National Water Commission, 2009, *Australian Water Reform 2009: Second biennial assessment of progress in implementation of the National Water Initiative.* Canberra. p. 98.

> decline while water quality and environmental problems continue to get worse.
>
> ... none of this massive investment will make any sense or can be effectively achieved without a complete overhaul of the Murray-Darling Basin's governance arrangements. Putting the Basin on a sustainable footing can only occur through faster reform and fully integrated catchment management. And that requires an end to the parochial pursuits of state interests.
>
> Rivers do not recognise those lines on the map that we call state borders ...
>
> Criticism of the management of the Murray-Darling Basin is often seen as the Commonwealth blaming the states or one state blaming the other. And there is no doubt that many errors have been made in the past.
>
> In the final analysis, however, the core problem is that the different states have competing interests. The South Australians resent, as they have for more than 150 years, the level of diversions by Victoria and New South Wales. The Queenslanders feel they were late to the party in developing irrigated agriculture and want to catch up. The New South Welshmen downstream complain that their overland flows have been diverted to cotton farms.
>
> As long as integrated water systems are being managed piecemeal by governments with competing interests, the execution of even the best national agreements will remain challenging and contentious.
>
> ...
>
> Tackling Australia's water security is an immense challenge. It requires a comprehensive, bold plan. It requires a commitment of resources and above all requires people to think as Australians above any other parochial identification or consideration. [46]

2.69 The Committee heard from many irrigators who feel they are blamed for any problems facing the Basin. They feel accused of over-extraction when they have had decreasing allocations against their water entitlements for many years and in some instances zero allocations.

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46 The Hon. John Howard MP, *Address to the National Press Club, Great Hall, Parliament House,* Canberra, 25 January 2007, <pandora.nla.gov.au/pan/10052/20070615-0000/www.pm.gov.au/media/Speech/2007/speech2341.html >, accessed 5 May 2011.

2.70 It is unproductive to apportion blame for over-allocations made by states over time.

2.71 It is the responsibility of all governments and water users to ensure that Basin resources are allocated and used sustainably. However, Basin water users must be given an understanding of why current allocations may be unsustainable in some parts and what adjustments or water saving measures can be utilised.

2.72 In addition, this long evolution of Basin water management has resulted in multiple layers of regulations administered by various level of local, state/territory and the Commonwealth governments. The necessity of the continuance of some of these regulations is questionable, for example, the management of the Menindee Lakes system being dependent on a 1964 agreement between the Commonwealth, New South Wales, Victoria and South Australia[47] and the management of Lake Victoria in south-western New South Wales as operated by the MDBA by a 1928 agreement.[48]

2.73 The Committee heard a number of instances where regulations of this sort exist and in practical terms hinder the implementation of water efficiency measures. It is time, as a part of the Basin Plan process, to review all the regulations in place to ensure that they provide the most efficient management of water resources.

Recommendation 1

The Committee recommends that the Commonwealth Government commission a study to identify all regulations and agreements in place that inhibit the efficient management of water in the Murray-Darling Basin and, where appropriate, work with the states to remove these regulations.

47 Stan Dineen, *Submission 351;* Menindee Lakes Agreement <austlii.edu.au/au/legis/nsw/consol_act/mlsaa1964282/sch1.html> accessed 28 May 2011.

48 See for example: DH Consulting, *Submission 641*, p. 1; Mr McComb, *Submission* 536, p. 7, MDBA, *Lake Victoria Annual Report 2009-10*, accessed 30 May 2011, <mdba.gov.au/services/publications/more-information?publicationid=85>.

Basin sustainability

2.74 In order to support sustainable, productive, healthy Basin communities, the Basin environment also needs to be sustainable and healthy. The two are inter-dependent. Over-extraction of Basin water and poor management of environmental flows have led to environmental impacts such as massive black water events. Although the results of the recent drought are also stark and undeniable, environmental decline has been evidenced in some areas since the 1980s.

2.75 The Committee received hundreds of submissions citing evidence of recovering habitats following the late 2010 rain events, which is testament to the river's robustness and resilience. However, SDLs are not about preventing natural cycles of drought and flood, they are to avoid the environmental degradation that is a direct result of poor management of catchments. For example:

- numbers of feral fish, feral animals and land and water weeds;
- dying river red gums and dependent biodiversity;[49]
- the incursion of red gums into drier wetlands and grass lands;
- water quality issues including black water events and blue-green algal blooms, for example:
  - ⇒ in 1983, an algal bloom extended for over 800km along the River Murray;
  - ⇒ in 1990 over 1000km of the Darling River was subjected to an algal bloom, which has been attributed to the death of an estimated 10,000 stock and toxicity in the Bourke drinking water supply;[50]
- decreasing water quality and loss or degradation of wetlands leading to a decline in waterbird populations, for example:
  - ⇒ with total waterbird abundance falling by 80% since 1983. Between 1983 and 2006, migratory shorebird populations plunged by 73% and Australia's 15 species of resident shorebirds declined by 81% across south-eastern Australia .... Since 1985, populations of many bird species in South Lagoon (Coorong) have declined, including (but not limited to) Black Swan (59%), Fairy Tern (82%), Australian Pelican

49 B. Dexter and B. Macleod, *Submission 153*, p. 4.

50 Emeritus Professor Ian Falconer, *Submission 97*, p. 3.

(77%), Curlew Sandpiper (94%), Sharp-tailed Sandpiper (63%) and Red-necked Stint (68%).[51]

- closure of the Murray Mouth - the mouth of the Murray at the Coorong in South Australia has been closed on average up to 40 per cent of the time causing salinity and acidity in the Coorong and the Lower Lakes;[52]
- expanding salinity issues.

2.76 Any decline in biodiversity is of concern in itself. However, the health of the natural resource and maintaining land productivity for food and fibre production is interdependent. Without sustainable water extraction limits, environmental health will decline resulting in the failure of ecosystems and natural resource dependent economies.

Case study 2.2 Goolwa Barrages

In 1931 the River Murray Commission recommended barrages be constructed on the channels leading from Lake Alexandrina to the Murray mouth at the Coorong.

Work on the barrages commenced in 1935 and was completed in 1940. South Australia's Engineering and Water Supply Department undertook the works, with costs shared equally by the Governments of Victoria, New South Wales, South Australia and the Commonwealth. Commonly known as the Goolwa Barrages, there are five barrages that make up the group:

- Goolwa
- Mundoo
- Boundary Creek
- Ewe Island
- Tauwitchere

Both the Goolwa and Tauwitchere barrages were built with locks, allowing passage between the Murray mouth and the Coorong.[53]

The purposes of the barrages are to:

- reduce salinity levels in the lower reaches of the River Murray and associated lakes;
- stabilise the river level, and normally maintain it above the level of reclaimed river flats between Wellington and Mannum, so as to provide irrigation by gravitation rather than pumping;
- during low flows, to concentrate releases to the ocean to a small area, and so scour a channel for navigation; and
- maintain pool water that can be pumped to Adelaide and the southeastern corner of South Australia.[54]

The water level upstream of the barrages is normally about 0.75 metres higher than mean sea

51 Birds Observation & Conservation Australia, *Submission 374,* p. 2.

52 CSIRO, *Water availability in the Murray-Darling Basin*, Canberra: October 2008, p. 4.

53 SA Water, South Australian Government, *The River Murray – Locks, Weirs and Barrages* <http://www.sawater.com.au/nr/rdonlyres/d7ddcd4e-6cd6-4c61-9d3d-4bc9041aa16a/0/river_murray_locks_weirs.pdf>, accessed 27 May 2011.

54 Murray Darling Basin Commission (MDBC), *River Murray Water - The barrages* <http://www2.mdbc.gov.au/rmw/river_murray_system/barrages.html>, accessed 27 May 2011.

level. The barrages cause an increase in water level of approximately 0.5 metres as far upstream as Lock 1 at Blanchetown (274 kilometres upstream).

To control water levels, 'stoplogs' are typically used, particularly at the Goolwa Barrage. During periods of low river flow all the logs must be in place to completely stop the flow and maintain high lake levels. During floods, the stoplogs may all be removed. For intermediate flows, constant regulation is required to prevent the entry of salt water and to keep the water level upstream at the required level.

Goolwa Barrage is the deepest of the barrages, constructed on fine sand and silt, and founded on timber piles and sheet piling up to 14 metres. The barrage contains a lock chamber 30.5 metres by 6.1 metres.[55]

2.77 At a number of the farms it visited, the Committee heard widespread concerns, particularly in the northern Basin, that the regular closure of the Murray mouth was being used as the reason for the Basin Plan. It is worth noting that the MDBA used flows through the Murray mouth not as an indicator of the health of the Lower Lakes, but rather is a surrogate or indicator of the health of the entire Murray-Darling system. Use of such an 'indicator' on a totally managed or regulated system was questioned by many.

2.78 The soils and groundwater of the Basin release salts into the rivers. This salinity is natural and, under natural conditions would be transported down the system and out the mouth during times of high rainfall. Based on the Basin Salinity Management Strategy,[56] the MDBA estimate that two million tons of salt would need to be flushed out of the system each year to balance the entry of salt into the rivers.[57] Rates of release of salt out of the landscape, in particular in mallee country depends on the season's rainfall, vegetation condition and other land uses. Droughts tend to see less salt regularly flushed from soil profiles or flowing through depleted aquifers. Flows move salt through the river system. Flows out of the Murray mouth prevent the accumulation of salts in the Lower Lakes and Coorong. During the drought, the Murray mouth has been dredged open. The mouth of the Murray was regularly sand blocked prior to river regulation by structures and lochs. The health of the entire Murray-Darling Basin is not indicated by the open or closure of the Murray mouth.

2.79 The saline nature and propensity for blue-green algal outbreaks are inherent in the character of the ephemeral Basin streams. Ensuring there are adequate flows to move and flush salt and nutrients out of the system is a responsibility of all who depend on its waters.

55 MDBC, *River Murray Water – Design and operation of the barrages,* <http://www2.mdbc.gov.au/rmw/river_murray_system/barrages/design_and_operation_of_the_barrages.html>, accessed 27 May 2011.

56 MDBC, *Basin Salinity Management Strategy 2001-2015*, Canberra, August 2001.

57 MDBA, *Guide: Volume 2*, Canberra: October 2011, p. 305.

2.80 While there is a need to manage the whole of the Basin well, achieving sustainability across the Basin will require different approaches in the different valleys. In general, the northern parts of the Basin are characterised by high variability of flows in the Darling and its tributaries[58] and a lack of river regulation. As a result of these factors, large private storages are more prevalent in the north. Different water extraction is also a consequence of different states' water law, resource management and water pricing regimes.

2.81 Another key difference is the geography between the Darling and Murray systems. The Darling Basin is flatter and much less mountainous than the neighbouring Murray Basin.[59]

2.82 As a result of the high variability and high evaporation, the Darling contributes a relatively small amount of the total flows of the Murray south of Wentworth. On a long-term average basis, the northern Basin would have naturally contributed around 17 percent of the flow below its junction with the Murray. Under natural conditions, only 18 percent of the inflows into northern Basin flow out of the Darling River.[60]

2.83 Although relatively small, the flows out of the Darling system are essential for the health of the northern Basin. In particular, flushing salts into the Murray and ultimately out the mouth.

2.84 The Committee heard concerns about the northern Basin providing water to the environment of the Lower Lakes and Coorong. However, as a result of its ephemeral nature and the high losses due to floodplain inundation and evaporation, there is limited ability to source water from the Darling River system to meet environmental needs in the Murray.[61]

Case study 2.3 Lower Lakes, Coorong and Murray Mouth

The Lower Lakes, Coorong and Murray Mouth region is located at the downstream end of the Murray-Darling system. It is also known as the Coorong, and Lakes Alexandrina and Albert (Lower Lakes) Wetland of International Importance (Ramsar site). Australia designated the site, covering approximately 140,500 hectares in South Australia, as a Wetland of International Importance under the Ramsar Convention on Wetlands in 1985. Parts of the Coorong also form the Coorong National Park and Game Reserve.

The River Murray terminates in South Australia at the Southern Ocean, having passed through Lake Alexandrina, the Murray estuary and finally, the Murray Mouth. Lake Albert is a terminal lake connected to Lake Alexandrina by a narrow channel. The Coorong is a long, shallow lagoon more than 100 kilometres in length. It is separated from the Southern Ocean by a narrow sand dune

58 MDBC, *State of The Darling Interim Hydrology Report*, Canberra, March 2007, p. 13

59 MDBC, *State of The Darling Interim Hydrology Report,* Canberra, March 2007, p. 11

60 MDBA, *Guide: Volume 2*, Canberra: October 2010, p. 157.

61 MDBA, *Guide: Volume 1*, Canberra: October 2010, p. 131.

peninsula. The region is the only point of entry and exit for fish that move between freshwater and marine habitats and is the only pathway to export salt from the Murray-Darling Basin.[62]

The Lower Lakes, Coorong and Murray Mouth is one of the regions that drew a lot of attention from submitters and witnesses. Following is an example of some of the arguments that were presented to the Committee, which included:

- Removal of the barrages at the Lower Lakes and some are also calling for building a division weir at Wellington.[63]
- The building of pipes under the dunes at the Coorong that could serve as:
  - ⇒ a method to overcome seasonal hyper salinity; and
  - ⇒ a tool for the timely and proportionate adjusting of flows in and out of the mouth.[64]
- Water assigned permanently to the region to ensure the health of associated wetlands.[65]
- Minimising evaporation losses by:
  - ⇒ Operating the Lower Lakes at a lower level.
  - ⇒ Building pipelines around the Lower Lakes to supply farms and towns with water and minimise evaporation losses from the Lakes.
  - ⇒ Engineering solutions that some have estimated to save in the order of 800 GL/y.[66]
- Building of a new dam in South Australia.[67]
- Allow the Lower Lakes to be 'returned to natural estuarine state'.[68]
- Better management to reduce the amount of productive water lost from the system yet still allows acceptable environmental outcomes to be achieved.[69]
- Further analysis and urgent attention as how to better manage the region.[70]

The MDBA informed the Committee that a Lower Lakes Social Impacts Case Study is being undertaken by Dr Jonathon Sobels from Flinders University to assess the social and some economic impacts of reduced access to Murray River water on the communities of the Murray River delta, comprising the Lakes Alexandrina and Albert and the Coorong and Murray Mouth, collectively referred to as the 'Lower Lakes'.[71]

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62 Department of Environment and Natural Resources of South Australia, *Coorong, Lower Lakes and Murray Mouth region* <http://www.environment.sa.gov.au/Conservation/Rivers_wetlands/Coorong_Lower_Lakes_Murray_Mouth> accessed 9 May 2011:

63 See for example: South West Anglers Association, *Submission 102*, p. 3; Murray Valley Water Diverters Advisory Association, *Submission 109*, p. 4; Graham Wells, *Submission 134*, p. 4, Cockburn Valley Water Users and Landcare Association, *Submission 140*, p. 2, Russell Fisher, *Submission 150*, p. 2, Carrathool Shire Council, *Submission 161*, p. 4, Australian Environment Foundation, *Submission 173*, p. 5; Campbell Partnership, *Submission 202*, p. 1, John Brian, *Submission 209*, p. 2. John Groutsch, *Submission 302*, p. 2; Bill Hetherington, *Submission 321*, p. 3, Caromar Pty Ltd, *Submission 509*, p. 1.

64 Mr Ian Mott, *Supplementary Submission 424.1*, p. 12.

65 Glenn Osboldstone, *Submission 10*, p. 1.

66 Tom Loffler, *Submission 120*, p. 4; Ian Bowditch, *Submission 125*, p. 2; Leeton Shire Council, *Submission 195*, p. 13; Riverina and Murray Regional Organisation of Councils, *Submission 259*, p. 6; Peter Davidson, *Submission 260*, p. 1.

67 Wentworth/Curlwaa Branch of the NSW National Party, *Submission 121*, p. 1.

68 See for example: Virginia Tropeano, *Submission 131*, p. 3, John Ibbotson, *Submission 158*, p. 4, Donald Macleod, *Submission 171*, p. 11, Knox Durrant, *Submission 220*, p. 2; Allan Haggerty, *Submission 244*, p. 1, Malcolm Hill, *Submission 367*, p. 2.

69 Auscott, *Submission 301*, p. 6.

70 See for example: Louise Burge, *Submission 496*; River, Lakes and Coorong Action Group, *Submission 480*; Water Action Coalition, *Submission 596*, p. 18.

71 MDBA, *Submission 224* (response to questions taken on notice), p. 16.

Community sustainability

2.85 The water reform debate is commonly argued as a trade-off between the environment and irrigation communities. This is not the case. The health and indeed the existence of Basin communities is dependent on the health of the river systems. Without a healthy and secure water supply there is no doubt that the communities that provide much of our food and who depend on water access will quickly and irreversibly decline.

2.86 There is also no doubt that successful farmers and land managers know and constantly strive to improve the value of a healthy ecosystem. So they sustain and improve the environment as they produce food and fibre. Farmers through Land-care and other investments have helped sustain environments through the drought. As the South Australian Murray Irrigators Inc. stated:

> Irrigators and dry land farmers alike in the South Australian river regions are country people who love the land and care for its well being.[72]

2.87 The Committee was taken to private wetlands being water filled and maintained by farmers for mixed species habitat renewal, and saw huge areas fenced out to protect endangered or breeding native birds and other species.

2.88 The Committee repeatedly heard concerns about future generations being driven away if communities died. It is for this reason that continued water reform is necessary – to ensure that the catchments can support healthy communities who in turn manage a healthy environment.

2.89 Having heard from hundreds of people across the Basin, the Committee has formed the view that communities do not oppose the notion of supporting environmental health, in fact, they support it. They oppose what appears to be a unilaterally imposed proposal that does not take into account measures already being undertaken by communities to restore wetlands, provide habitat for biodiversity and improve water-use efficiency.

2.90 The next Chapter addresses the delivery of the Guide, the existing pressures on farming communities and the need for a community-focussed Basin Plan.

72 South Australian Murray Irrigators Inc, *Submission 459,* p. 1.