Chapter 4

Environmental outcomes and socio-economic impacts

4.1 The previous two chapters showed the significant shortcomings in the Murray-Darling Basin Authority's (MDBA) processes for developing its Sustainable Diversion Limits (SDLs) on surface water and ground water.

4.2 This chapter shifts the focus to what the reductions flowing from the SDLs, particularly the surface water 2750 GL/y, aim to achieve for the environment and the communities that depend on the Basin. As will be shown below, the evidence received by committee questions whether the Basin Plan would achieve either of these two main objectives.

Environmental outcomes

4.3 An objective of the Basin Plan and the determination of SDLs and Baseline Diversion Limits (BDLs) for surface and ground water is to achieve the environment outcomes that are set in the *Water Act 2007*, in a way that optimises economic, social and environmental outcomes. However, the committee requires reassurance that the Basin Plan will meet this central task.

4.4 The committee received evidence that the Basin Plan would not achieve its defined ecological targets. The CSIRO's *Science Review of the Estimation of an Environmentally Sustainable Level of Take for the Murray-Darling Basin*, was tabled at a committee hearing on 23 April 2012. The review, published in November 2011, is a comprehensive evaluation of much of the science used by the MDBA to develop the Basin Plan.

4.5 The CSIRO's review identified a number of shortcomings with the Basin Plan, but perhaps the most significant was the criticism of the Basin Plan's ability to reach the required ecological outcomes. According to the report:

> The modelled 2800 GL/y reduction scenario considered by the panel [of CSIRO scientists that conducted the review of the MDBA's modelling] does not meet several of the specified hydrologic and ecological targets. In some cases operations constraints prevent delivery of environment water to meet targets implying that some of the current ecological targets are not consistent with unavoidable operational constraints. In other cases, the shortfalls against targets appear to be a result of insufficient environmental water, shortcomings in modelling environmental flow regimes in the unregulated rivers of the Basin or a combination of the factors.
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> *Further analyses, including modelling of water use reduction scenarios above the 2800 GL/y scenario, are required to more fully assess the reasons for the modelled shortfalls*. Given the current evidence base, *the level of take represented by the 2800 GL/y reduction scenario is not*

> *consistent with the hydrologic and ecological targets* provided in the review.[1] [emphasis added]

4.6 The CSIRO report goes on to discuss the 2800 GL/y scenario meeting the individual environmental targets across the Basin:

> The SDLs modelled in this scenario do not achieve the majority of hydrologic targets. They meet 55% of the 'achievable' targets at either the 'high risk' or 'low risk' frequency. The 2800 GL/y reduction scenario is thus not consistent with the currently stated environmental targets.[2]

4.7 The committee also received evidence from the Australian Conservation Foundation (ACF) about this issue. The ACF has examined the MDBA's ecological targets and how they may be met by the Basin Plan. The ACF tabled its review in the committee's hearings of 24 April and 10 September 2012. The most recent version shows that the ACF believes the Basin Plan would only succeed in achieving the required environmental outcomes in 57 per cent of cases.[3]

4.8 The ACF argued that the 43 per cent failure rate stems in part from the various physical and regulatory constraints in the Murray-Darling Basin system. However, the ACF also concluded that there is not enough water being returned to the Basin under the 2750 GL/y scenario.[4]

Environmental watering plan

4.9 The MDBA is required under the Water Act to develop an Environmental Watering Plan (EWP) as part of the Basin Plan. The EWP is designed to address:

- the overall environmental objectives for water-dependent ecosystems;
- the targets by which to measure progress toward the objectives;
- a management framework for environmental watering;
- methods for identifying environmental assets and ecosystem functions that require environmental watering and their watering requirements;
- principles and methods for deciding environmental watering priorities;

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1 Young WJ, Bond N, Brookes J, Gawne B and Jones GJ, *Science Review of the estimation of an environmentally sustainable level of take for the Murray-Darling Basin.* A report to the Murray-Darling Basin Authority from the CSIRO Water for a Healthy Country Flagship, November 2011, p. 29. Note: this document was tabled at the committee's hearing on 24 April 2012.

2 Young WJ, Bond N, Brookes J, Gawne B and Jones GJ, *Science Review of the estimation of an environmentally sustainable level of take for the Murray-Darling Basin.* A report to the Murray-Darling Basin Authority from the CSIRO Water for a Healthy Country Flagship, November 2011, p. 30.

3 Australian Conservation Foundation, *Modelled Ecological Outcomes of the Proposed Basin Plan 2750 SDL Scenario*, document tabled, 10 September 2012.

4 Australian Conservation Foundation, *Modelled Ecological Outcomes of the Proposed Basin Plan 2750 SDL Scenario*, document tabled, 10 September 2012.

- principles for carrying out environmental watering; and
- planning for the recovery of additional environmental water.[5]

4.10 The Windsor Report criticised the EWP as set out in the Guide because of concerns over its lack of detail.[6] The evidence heard by the committee regarding the Basin Plan (November 2011) suggested this issue had not been addressed.

4.11 According to Mr Tom Chesson, CEO of the National Irrigators' Council:

> It is confusing that you can come up with a number before you know what you want to water locally. That has always been a confusion point of ours. It is pretty clear in chapter 7 [of the proposed basin plan] that they [the MDBA] do not have a long-term environmental watering plan.[7]

4.12 Mr Chesson later added that it 'must be very hard to operate a watering regime when you do not have an environmental watering plan'.[8]

4.13 The frustration that the MDBA had continually failed to address the issue from the Guide to the Basin Plan was expressed clearly to the committee in its visit to Hay and Mildura. For example, Mr Culleton, CEO, Coleambally Irrigation Co-operative, told the committee in Hay:

> Many promises were made to communities like Coleambally as the Commonwealth government went into damage control post the *Guide to the Basin Plan* [the Guide]. Almost 18 months later we have a draft plan [Basin Plan (November 2012)] that still will not deliver on those promises. We were promised better science. Why is it, then, that we still do not have an environmental watering plan...[9]

4.14 During the committee's visit to Mildura, Ms Cheryl Rix, General Manager, Western Murray Irrigation Ltd expressed a similar frustration:

> ...there is no environmental watering plan in the guide and there is none in the draft [Basin Plan (November 2012)] as well. There is an enormous amount of taxpayer' money tied up in that. They need to be given the right to understand how it will be used.[10]

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5 MDBA, *Plain English summary of the proposed Basin Plan — including explanatory notes*, November 2011, p. 32. The environmental watering plan is set out in chapter 7 of the basin plan.

6 House of Representatives Standing Committee on Regional Australia, *Of drought and flooding rains: Inquiry into the impact of the Guide to the Murray-Darling Basin Plan*, May 2011, pp 149–152.

7 Mr Tom Chesson, CEO, National Irrigators' Council, *Committee Hansard*, 23 April 2012, p. 56.

8 Mr Tom Chesson, CEO, National Irrigators' Council, *Committee Hansard*, 23 April 2012, p. 57.

9 Mr John Culleton, CEO, Coleambally Irrigation Co-operative Limited, *Committee Hansard*, 2 April 2012, p. 28.

10 Ms Cheryl Rix, General Manager, Western Murray Irrigation Limited, *Committee Hansard*, 3 April 2012, p. 14.

4.15 The way that the MBDA had developed the principle of localism to better implement the objectives of the EWP also came under criticism in the committee's hearings. While the committee is generally supportive of the concept of localism, the evidence received during the inquiry suggests that much more work remains to be done before it can be used effectively as part of the EWP.

4.16 As the National Irrigators' Council stated:

> We have certainly got some mixed messages from the Murray-Darling Basin Authority around the localism issue. It certainly has been promoted that localism would be a huge part of the answer in developing the [environmental watering plans] from here on. Then we have had the chair of the MDBA saying that localism may just further exacerbate the current problems that we have in running a basin-wide system.[11]

4.17 The committee acknowledges that the MDBA has made some changes to the EWP in recent months. However, it is still of the view that significant problems remain regarding the issues raised above. In its recent hearing on 23 August 2012, only several weeks prior to the tabling of this report, a Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) official responded to a question about the timeline for environmental water plans in the following way:

> It is an ongoing process and the precise timeline—the integration between the environmental watering plan and the environmental watering strategy, which cascades from it, the long-term watering plans for particular sites, which cascade from and also feedback into the environment—is presently being finalised. Broadly speaking, from memory, on the basis of the existing plan, if that were to be approved, the environmental watering strategy is required to be done within one year...
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> That then feeds into a process where annual watering priorities are determined, and those annual watering priorities are then matters which are key things which feed into actual environmental watering decisions. It is a complex process.[12]

4.18 This response gives the committee very little confidence that the issues discussed above regarding the EWP will be solved anytime soon.

Impact on rural communities and irrigators

4.19 The committee is of the view that the 2750 GL/y figure may have been determined by the MDBA as a trade-off between the ecological targets and the socio-economic impacts of the Basin Plan.

4.20 The committee is highly supportive of the rural communities in the Basin and the need to include socio-economic outcomes in the Basin Plan. However, evidence was received that the Basin Plan may fail to achieve its desired ecological targets, and may have significant adverse impacts on rural communities.

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11 Mr Stewart Ellis, Chair, National Irrigators' Council, *Committee Hansard*, 23 April 2012, p. 49.

12 Mr David Parker, Deputy Secretary, SEWPaC, *Committee Hansard*, 23 August 2012, p. 34.

4.21 A number of witnesses show great concern about the viability of communities and irrigation supply businesses as a result of the 'Swiss cheese' affect which is the non-uniform loss of irrigation within irrigation districts. As Mr Ellis, Chair of the National Irrigators' Council told the committee:

> We formed the National Irrigators' Council two, three or four years ago but this would be the first time we have had irrigators from across the four basin states actually sitting in a room and having some discussions. I do not want to see [the Central Irrigation Trust] go out of business from the Swiss cheese effect down there [in the Riverland Region of South Australia] any more than I want to see my own region go out of business. I formed the National Irrigators' Council with a view to being smarter about how we do things in this basin and trying to come up with some positives about how we do things better—and God help us if we don't.[13]

4.22 The additional problems for communities only just recovering from severe drought, the economic downturn stemming from the global financial crisis and the sustained record high Australian dollar were made apparent when the committee held public hearings on Hay and Mildura in early April 2012.

4.23 Indeed, the committee's hearing in Hay took place only days after the town suffered significant flooding. The backdrop to the hearing reasserted the need for the Basin Plan being the right one for rural communities.

4.24 Mr Crighton, a local engineer from Hay, summed this up well:

> Water is going to go; we understand that. We all want the river to be managed; we all want it to be maintained. We understand that a volume of water has to go but the communities that are there are going to be the people who are truly going to suffer from that change and they are the people who most need assistance. These regional towns need any assistance they can get to broaden their sector, to get out and grab other work and other income and to start working with other industries, such as our predominant industry which is dryland farming. The transition is not easy.[14]

4.25 The General Manager of Hay Shire Council outlined the impact of the 2750 GL/y reduction for Hay in stark terms:

> That will decimate the lifeblood of this area. From Hay Shire's point of view, it is a very resilient community but it has had a pretty hard time with 12 years of extreme drought, and to lose this amount of irrigated agriculture from the area is a terrible blow to the economy of the community.[15]

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13 Mr Stewart Ellis, Chair, National Irrigators' Council, *Committee Hansard*, 23 April 2012, p. 55. See also Mr Terence Hogan, Chairman, Riverina and Murray Regional Organisation of Councils, *Committee Hansard*, 2 April 2012, p. 58; and Mr Mark McKenzie, Chief Executive, Murray Valley Winegrowers Inc., *Committee Hansard*, 3 April 2012, p. 20.

14 Mr Jasen Crighton, Director, Crightons Rural Engineering *Committee Hansard*, 2 April 2012, p. 5.

15 Mr Allen Dwyer, General Manager, Hay Shire Council, *Committee Hansard*, 2 April 2012, p. 57.

4.26 The impact was not limited to Hay, as the committee heard from evidence it took in Mildura the following day. Mayor Margaret Thomson of Wentworth Shire was pessimistic about the Basin Plan's impact on the Wentworth community given its reliance on irrigated farming:

> We do have very grave concerns about the effect on our communities in the future and how we can remain a prosperous community. The shire is an agricultural economy that is almost entirely dependent on production from irrigated horticulture. Up to 80 per cent of the gross value of our agricultural production is generated by only 0.5 per cent of the landmass of the Wentworth shire.[16]

4.27 The Mildura Rural City Council Mayor was also concerned that communities would be 'decimated' as a result of the Basin Plan and its implementation of the water buyback. He also pointed to its follow-on effects:

> ...it will take out of those areas massive production, and it is going to make it very difficult for the councils to continue with a rate level as it is currently, because as the land values in those areas decrease other people are going to pay more. Mildura is also a member of Regional Cities Victoria, and both the previous Labor government and the current coalition government in Victoria have a policy of people moving to the regional cities. You cannot do that with a lower rate base unless there is some significant capital put in to ensure that they are able to survive.[17]

4.28 The representative from Citrus Australia highlighted the need for the Basin Plan and related water policies to build consensus among industry. However Ms Chapman suggested that at the moment there is likely to be the opposite outcome:

> ...we will have infighting within our industries, all about everybody saying that their produce is the most important. It is so essential that, if we are going to have solid regional communities—and we need that for Australia to survive—we can get something that we can all work with. At the moment there is no guarantee that we are getting anywhere close to anything that we can live with.[18]

Modelling of rural impacts

4.29 The available socio-economic information makes it clear that certain rural Basin communities will struggle due in part to the Basin Plan. However, the reliability of this information is thrown in doubt by various problems in the modelling of the socio-economic impacts of the Basin Plan on rural communities.

4.30 For example, the committee questioned the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) over its analysis of

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16 Councillor Margaret Thomson, Mayor, Shire of Wentworth, *Committee Hansard*, 3 April 2012, p. 30.

17 Councillor John Arnold, Mayor, Mildura Rural City Council, *Committee Hansard*, 3 April 2012, p. 31.

18 Mrs Tania Chapman, Chair, Citrus Australia, *Committee Hansard*, 3 April 2012, p. 26.

socio-economic impacts and, in particular, the assumptions made about people remaining in communities after they sold their water entitlements. ABARES officials explained that their main modelling 'assumed they [those who changed jobs as a result of the Basin Plan] would stay within the regions' as the modelling only considered large regions rather than focussing on smaller towns.[19]

4.31 ABARES went on to state that different scenarios, such as modelling the impact where people moved out of a region and therefore removed money from that region, made only a 'relatively small' difference. Despite this, ABARES conceded that the way the modelling worked meant it was difficult to actually determine the proportion of people staying or leaving a region as a result of the plan.[20]

4.32 Another significant flaw in the ABARES modelling appears to be limited consideration of connectivity between the water resources in the Basin, the importance of which was discussed in Chapter 3. When asked about the inclusion on connectivity in the ABARES modelling, officials responded:

> It is not a detailed scientific model, but there is some representation of differences between surface water and groundwater in the modelling.[21]

4.33 The MDBA's own socio-economic modelling report only looks at the 'likely' impact of reducing surface water. The socio-economic implications reflected in this report are limited to one scenario but also only consider the long-term average SDLs for surface water and no consideration is provided to groundwater extractions.[22]

4.34 Given the broad nature of the assessments made by the MDBA and ABARES, there is uncertainty regarding the extent of the negative socio-economic impact, which communities will suffer. As a consequence, some organisations undertook their own assessments into the impact on local areas. One such report commissioned by Murrumbidgee Irrigators Ltd presented quite different findings to the MDBA's assessments:

> The Independent [Economics] study found that a 29 per cent reduction in productive water use in the South West Murrumbidgee (Griffith, Leeton, Narrandera, Carrathool and Murrumbidgee local government areas) is likely to permanently reduce employment by 2100 jobs...[and] also estimates GDP in this region will reduce by about 9 per cent and income by about $200 million.[23]

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19 Mr Paul Morris, Executive Director, ABARES, DAFF, *Committee Hansard*, 24 April 2012, p. 11.

20 Mr Paul Morris, Executive Director, ABARES, DAFF, *Committee Hansard*, 24 April 2012, p. 11.

21 Mr Paul Morris, Executive Director, ABARES, DAFF, *Committee Hansard*, 24 April 2012, p. 5.

22 MDBA, *The Socio-economic implications of the proposed Basin Plan*, May 2012, p. 3.

23 Murrumbidgee Irrigators Ltd, *Murray-Darling Basin Plan*, www.mirrigation.com.au/Policy-and-Reform/Murray-Darling-Basin-Plan/Murray-Darling-Basin-Plan, (accessed 6 September 2012).

4.35 ABARES explained that the variation in results of modelling could be attributed to the size of areas assessed. Mr Morris explained:

> [The Independent Economics modelling] has some quite unusual results that we do not quite understand. The smaller the region, potentially the higher the likelihood of people moving out of the region. They have defined quite a small region—it is the south-west Murrumbidgee—whereas our regions are a bit bigger than that.[24]

4.36 The MDBA also stated that the main reason for the varying socio-economic impact results is that different assumptions have been used for different modelling and that it did not agree with the assumptions used in alternative modelling.[25]

4.37 However, the MDBA has not stated which assumptions it disputed nor has it given a clear explanation as to the key assumptions that underpinned its assessment of socio-economic impacts and a rationale as to why these were more appropriate.[26]

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24 Mr Paul Morris, Executive Director, ABARES, DAFF, *Committee Hansard*, 24 April 2012, p. 11.

25 MDBA, *The Socio-economic implications of the proposed Basin Plan*, May 2012, pp 3–4.

26 MDBA, *The Socio-economic implications of the proposed Basin Plan*, May 2012, p. 4.