

Environmental water management

Overview

- 2.1 While the Committee heard generally positive views on the Commonwealth Environmental Water Holder (CEWH), a range of issues, challenges and alternative approaches relating to environmental water management were discussed during the inquiry. These included:
- general principles for maximising environmental water;
 - how legal protections for environmental water flows in unregulated rivers could be resolved and enforced;
 - delivery of environmental water, third-party impacts and the CEWH's 'good neighbour policy';
 - trading and selling environmental water;
 - complementary measures;
 - funding for upgrades to water use efficiency; and
 - coordinating water releases.
- 2.2 During this inquiry, submissions and witnesses offered distinct perspectives on environmental water. A sample of these views is provided below, to provide a general sense of the evidence received during the inquiry.

Adequacy of water volumes

- 2.3 Some views focused on the importance of water volumes for achieving environmental outcomes, the timing of water releases (based on natural cues) and the strength of regulatory arrangements.

2.4 The NSW Conservation Council submitted that there had been long-term over extraction of water, which had caused the health of the Murray-Darling Basin to decline.¹ The submission stated:

The need to add water back to the Basin is the key purpose of the Basin Plan. While other issues have been identified as impediments to environmental outcomes, many will not solve the problem without additional water.²

2.5 The Nature Foundation SA commended the CEWH's use of available environmental water, but also noted:

...the volume of water available to the CEWH is very significantly less than the 4,000 GL volume indicated by science as needed to achieve the environmental outcomes contained in the Basin Plan.³

2.6 Professor Lin Crase (University of South Australia) noted that while initial modelling by the Murray-Darling Basin Authority showed that 7,600 gigalitres of water was needed for the environment in the Basin,⁴ subsequently 2,750 gigalitres was settled upon as being sufficient for this purpose. He submitted that the science suggests the CEWH 'cannot deliver the system-wide benefits sought' and its position is similar to 'a farmer holding an entitlement but still not enough to grow a crop'.⁵ Professor Crase added that the 'the aim is to optimise within constraints' rather than to assume that 'more water entitlement sitting on CEWH books automatically equates to better environmental outcomes'.⁶

2.7 The Environmental Defenders Office of Australia commented on regulatory and legal issues relating to environmental water. Ms Rachel Walmsley (Policy and Law Reform Director, Environmental Defenders Office of Australia) said that environmental watering outcomes had been compromised due to instances of 'lawful mismanagement' and 'regulatory gaps'.⁷ The Office's submission gave some examples:

- extraction limits that do not take into account climate change and which are not based on best-available science;

1 Nature Conservation Council NSW, *Submission 24*, p. 4.

2 Nature Conservation Council NSW, *Submission 24*, p. 4.

3 Nature Foundation SA, *Submission 22*, p. 2.

4 Murray-Darling Basin Authority, *Guide to the Proposed Basin Plan, Volume 1, Overview*, 2010, pp. xvii-xxi and p. 100.

5 Professor Lin Crase, *Submission 1*, p. 2.

6 Professor Lin Crase, *Submission 1*, p. 1.

7 Ms Rachel Walmsley, Policy and Law Reform Director, Environmental Defenders Office of Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 1; see also Southern Fishermen's Association, *Submission 37*, pp. 4-5.

- lawful extraction of environmental or ‘community’ water purchased with taxpayers’ money;
- closed tender ‘buybacks’ lacking in transparency, value for money and environmental utility; and
- recovering water for the environment via on-farm efficiency upgrades which – based on best-available evidence – are likely to reduce environmental flows.⁸

Water efficiency and complementary measures

- 2.8 Other evidence emphasised the importance of water efficiency and how the environment could be improved with measures unrelated to water flows,⁹ such as eradicating pest species.
- 2.9 The National Irrigators’ Council’s submission stated that the acquisition of more water for the environment ‘will not on its own deliver environmental benefits’ and there should be ‘a shift of focus from numbers to outcomes’.¹⁰ The submission continued:
- ...to achieve improved ecological outcomes (which we support), a range of complementary, or non-flow, measures, should be examined ... Measures improving riverine and riparian outcomes have been routinely delivered through successive federal government programs such as Caring for our Country and the National Landcare Program.¹¹
- 2.10 The National Farmers’ Federation submitted that there are ‘gains to be made’ with the efficient use of environmental water:
- The goal must be to deliver improved environmental outcomes from the portfolio of water that has already been recovered for the environment – in essence more environmental outcome per unit of water held and delivered.¹²
- 2.11 Murray Irrigation observed:
- Success should be measured by the health of the environment not the volume of water transferred into environmental water portfolios.¹³

8 Environmental Defenders Office of Australia, *Submission 28*, p. 2.

9 Terms used to describe these options include ‘non-flow measures’, ‘complementary measures’ or ‘toolkit measures’.

10 National Irrigators’ Council, *Submission 23*, p. 4.

11 National Irrigators’ Council, *Submission 23*, p. 5.

12 National Farmers’ Federation, *Submission 29*, p. 3.

13 Murray Irrigation, *Submission 30*, p. 3; see also Cotton Australia, *Submission 5*, pp. 1-2.

2.12 The next sections of this chapter discuss in further detail the evidence received during the inquiry in relation to managing environmental water and innovative approaches.

Optimising or maximising environmental water

2.13 As described in Chapter 1, a quantity of water has been progressively set aside for CEWH in the Murray-Darling Basin area. In the past, this water may have been available for irrigation and consumption, but is now reserved for environmental purposes.

2.14 The optimal use of environmental water is regarded as important for three main reasons:

- there are many environmental assets in the Basin that need watering;
- the CEWH has a finite amount of water available; and
- other water users aim to be disciplined and efficient with their water use and expect similar diligence from the CEWH.

2.15 Mr Michael Murray (General Manager, Cotton Australia) said that the CEWH and other environmental managers 'need to be very specific' about the expected outcomes from water releases.¹⁴ He said:

...it has to be an outcome that local people can relate to. ... It's got to be: 'We want to make a release because we want to encourage fish breeding and we can measure that' ... And then it has to be measured, monitored and evaluated.¹⁵

2.16 The NSW Irrigators' Council submitted that 'every litre of deployed environmental water should be used to best effect in reaching the Basin Plan's environmental objectives'.¹⁶

2.17 The Ricegrowers' Association of Australia submitted:

... the irrigation industry has been extremely proactive in ensuring its irrigation infrastructure operators and individual irrigators manage their water in the most efficient manner possible.

14 Mr Michael Murray, General Manager, Cotton Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 15.

15 Mr Michael Murray, General Manager, Cotton Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 15; see also Mr Mark Winter, Vice Chair, Gwydir Valley Irrigators Association Inc, *Committee Hansard*, Canberra, 30 May 2018, p. 7.

16 NSW Irrigators' Council, *Submission 32*, p. 3.

Unfortunately the same standards of efficiency have not been upheld by environmental water users.¹⁷

- 2.18 Southern Riverina Irrigators recommended that water should be used in the region from where it originated, if there is surplus water due to natural events.¹⁸ Their submission added:

The key to successfully utilising environmental water is to ensure that addressing environmental concerns in one region does not come at the expense of environmental assets in another region.¹⁹

- 2.19 On the other hand, a submission from the National Farmers' Federation stated that these factors should not necessarily determine where money is invested:

Investment should flow to the environmental activities that best improves the capacity to achieve the environmental objectives of the Basin Plan.²⁰

- 2.20 Ms Caren Martin (Chairperson, South Australian Murray Irrigators) noted that the Basin includes significant national and international environmental assets.²¹ She said:

We don't actually have enough water here to give what the Coorong requires, so we need every catchment to contribute a little bit to the Coorong for its national significance.²²

- 2.21 The Nature Conservation Council NSW submitted:

The timing of environmental water release... requires adaptive management and flexible decision-making based on triggers and natural cues. This is particularly important in the case of supporting bird breeding and fish breeding events across the Basin.²³

- 2.22 The Department of the Environment and Energy submitted that the CEWH is 'committed to being a diligent, responsive and prudent water

17 Ricegrowers' Association of Australia, *Submission 19*, p. 5; see also Mrs Zara Lowien, Executive Officer, Gwydir Valley Irrigators Association Inc, *Committee Hansard*, Canberra, 30 May 2018, p. 10.

18 Southern Riverina Irrigators, *Submission 21*, p. 3; see also Mr Mark Winter, Vice Chair, Gwydir Valley Irrigators Association Inc, *Committee Hansard*, Canberra, 30 May 2018, p. 7.

19 Southern Riverina Irrigators, *Submission 21*, p. 4.

20 National Farmers' Federation, *Submission 29*, p. 5.

21 Ms Caren Martin, Chairperson, South Australia Murray Irrigators, *Committee Hansard*, Mildura, 1 May 2018, p. 25.

22 Ms Caren Martin, Chairperson, South Australia Murray Irrigators, *Committee Hansard*, Mildura, 1 May 2018, p. 28.

23 Nature Conservation Council NSW, *Submission 24*, p. 3.

manager who uses water efficiently and effectively'.²⁴ The Commonwealth Environmental Water Holder, Ms Jody Swirepik, said there is planning and liaison with river operators in real time to optimise environmental water.²⁵ She said:

We are looking at what is happening in the system and actually placing our water around other water so that we can make the most of it and get the best environmental outcomes. That's both tying it in with natural cues – it might be for breeding or spawning or for particular habitats to be wet at a good time of year – and also in terms of looking at the most efficient use of the water so that we use as little as possible to achieve that outcome.²⁶

2.23 The Department's submission noted that environmental outcomes 'will be significantly less' without the Basin States making two changes, due to take effect in July 2019:

1. credit environmental return flows for downstream environmental use (protection of environmental water).
2. allow the call of held environmental water from storage during unregulated flow events (piggybacking).²⁷

2.24 The submission stated that recognition of return flows would allow for water to be re-used at multiple sites, extending the benefits and outcomes using the same water. The submission advised that protecting environmental water from extraction by other users 'can be difficult', as the States are responsible for compliance systems and, currently, there is no guarantee of real-time protection for environmental water when it is released.²⁸ The submission added:

...better environmental outcomes could be achieved if Basin States provide event-based protection of environmental water, which will also increase public confidence that the water is being used as intended.²⁹

2.25 The practice of 'piggybacking' (discussed later in this chapter) involves releasing environmental water to increase the size of an existing flow already in the river, which creates a cumulative effect and replicates larger

24 Department of the Environment and Energy, *Submission 38*, p. 24.

25 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 2.

26 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 2.

27 Department of the Environment and Energy, *Submission 38*, p. 30; see also see also Victorian Government, *Submission 41*, appendix 3, p. 12.

28 Department of the Environment and Energy, *Submission 38*, pp. 30-31.

29 Department of the Environment and Energy, *Submission 38*, p. 31.

natural events. The Department submitted that this increases efficiency because 'a greater outcome can be achieved with the same volume of water'.³⁰

- 2.26 A submission from the Victorian Government noted how infrastructure can be used for efficiency:

Water supply infrastructure such as pumps, regulators and pipes can help to water important environmental sites in the absence of natural floods. This means that less water is needed to connect the river to its floodplain.³¹

- 2.27 The Department of the Environment and Energy's submission also outlined processes for environmental water planning, including 15 water resource planning principles.³²

- 2.28 During the inquiry, many submissions and witnesses discussed options to protect environmental water, particularly in the northern Basin area, as well as large flows leading to potential flooding and third-party impacts. This evidence is reviewed in the following sections.

Legal protections for environmental water

- 2.29 Environmental water receives protection from extraction while it flows within a catchment area.³³ However, once the environmental water flows into another catchment, other water users could be permitted to pump water from the river and use it for consumptive purposes.

- 2.30 The Murray-Darling Basin Authority's (MDBA) submission explained that in the southern Basin, water is released from storage to fulfil delivery orders, whereas in parts of the northern Basin, flow is dependent on rainfall and water is extracted based on these conditions.³⁴ The MDBA observed:

In these unregulated northern systems, specially tailored rules are required in order to be able to meet the ecological needs of the river system by allowing the water recovered by the

30 Department of the Environment and Energy, *Submission 38*, p. 30.

31 Victorian Government, *Submission 41*, appendix 3, p. 13; see also Deakin University, *Submission 10*, p. 1.

32 Department of the Environment and Energy, *Submission 38*, p. 24.

33 The Basin is divided into a subset of 22 river catchments. The MDBA's website detailed maps and profiles; see: <<https://www.mdba.gov.au/discover-basin/catchments>>.

34 Murray-Darling Basin Authority, *Submission 34*, p. 7.

Commonwealth to remain instream, while balancing the needs of other water users.³⁵

- 2.31 The CEWH said there is a ‘very high’ degree of certainty that environmental water is protected within a catchment; however, particularly in the Barwon-Darling catchment (in north-western NSW),³⁶ a licence holder can pump water when flows reach a certain level. This leads to the need for a practice known as environmental water ‘shepherding’, where an assurance is given that an environmental water flow will remain protected over vaster geographical distances.³⁷
- 2.32 Professor Michael Stewardson (University of Melbourne) noted that Commonwealth environmental water entitlements have the same character as irrigation entitlements. He said:
- That character means that when the water passes downstream of the section of river where that water was intended to be used it gets returned to the consumptive pool ... Clearly, that’s not the intended purpose within environmental water use. The intended purpose of environmental water use is that the water is retained within the river system.³⁸
- 2.33 Dr Avril Horne (University of Melbourne) said that this could be addressed in regulated river systems, but is more complex in river systems where the rules allow users to pump water once the river reaches a certain level. She added that in these situations, there is no ability to distinguish environmental water.³⁹ Dr Horne explained that although irrigation water and environmental water share the same characteristics, both have different needs and objectives. She described environmental water as ‘a new user that has entered the system’ and said that the challenge is to create the flexibility needed to meet the objectives in the Basin Plan.⁴⁰

35 Murray-Darling Basin Authority, *Submission 34*, p. 8.

36 For further information about the Barwon-Darling catchment, refer to the Murray-Darling Basin Authority’s website: <<https://www.mdba.gov.au/discover-basin/catchments/barwon-darling>>

37 Ms Jody Swirepik, Commonwealth Environmental Water Holder and Mr Mark Taylor, Assistant Secretary, Department of the Environment and Energy, *Committee Hansard*, Canberra, 28 March 2018, p. 5.

38 Professor Michael Stewardson, University of Melbourne, *Committee Hansard*, Albury, 30 April 2018, p. 11; see also Environmental Defenders Office Australia, *Submission 28*, pp. 3-4.

39 Dr Avril Horne, University of Melbourne, *Committee Hansard*, Albury, 30 April 2018, p. 12; see also Mr Michael Murray, General Manager, Cotton Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 13.

40 Dr Avril Horne, University of Melbourne, *Committee Hansard*, Albury, 30 April 2018, pp. 12-13; see also Mr Steve Whan, CEO, National Irrigators’ Council, *Committee Hansard*, Canberra, 23 May 2018, pp. 8-9.

- 2.34 The Australian Floodplain Association observed that interest in the Barwon-Darling had only emerged following media attention.⁴¹
- 2.35 The NSW Government submitted:
- A key challenge to managing environmental water in NSW is the characteristics of the northern part of the Murray Darling Basin. Major regulated rivers in the northern part of the Basin are connected to the southern regulated rivers by the unregulated Barwon Darling River.⁴²
- 2.36 The submission continued:
- The NSW Government is committed to finding both interim and enduring solutions that will ensure environmental water is properly protected so the long term and short term objectives set for environmental water can be met.⁴³
- 2.37 The Nature Foundation SA, among others, submitted that ‘it is essential... to ensure that environmental water cannot be captured in transit by irrigation diversions’ and protected from the northern tributaries to the river mouth.⁴⁴ The Nature Conservation Council NSW emphasised that legal protections are particularly important in the Barwon-Darling river system and the connected Southern Basin.⁴⁵
- 2.38 Dr Emma Carmody (Senior Policy and Law Reform Solicitor, Environmental Defenders Office Australia) said that the preferable option for resolving this issue is to include rules in water sharing plans.⁴⁶ Alternatively, she said that water extraction could be embargoed for limited periods of time.⁴⁷
- 2.39 The Department of the Environment and Energy’s submission stated that Commonwealth-accredited water resource plans are required to be in

41 Australian Floodplain Association, *Submission 20*, pp. 3-4.

42 NSW Government, *Submission 17*, p. 7.

43 NSW Government, *Submission 17*, p. 7.

44 Nature Foundation SA Inc, *Submission 22*, p. 3; see also Professor Michael Stewardson, University of Melbourne, *Committee Hansard*, Albury, 30 April 2018, p. 9, Dr Clayton Sharpe, private capacity, *Committee Hansard*, Mildura, 1 May 2018, p. 13; Professor Richard Kingsford, *Committee Hansard*, Sydney, 22 June 2018, p. 8.

45 Nature Conservation Council NSW, *Submission 24*, p. 3; see also Australian Floodplain Association, *Submission 20*, p. 3.

46 ‘Water sharing plans’ apply in NSW and form a component of water resource plans in the *Water Act 2007* (Cth) for implementing the Basin Plan.

47 Dr Emma Carmody, Senior Policy and Law Reform Solicitor, Environmental Defenders Office of Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 4.

place by July 2019 and, once approved, will set state regulation of water until 2029.⁴⁸ The submission added:

The rules and policies to be established... should provide the means to ensure that environmental water is protected from being repurposed, or extracted, as it flows throughout and between river systems.⁴⁹

2.40 Other witnesses and submissions described the issues as being more complex to resolve.⁵⁰ Mr Les Gordon (Chair, Water Taskforce, National Farmers' Federation) said that while in hindsight water resource plans 'should have been completed earlier', finalising them takes time:

They are really difficult, complex bodies of work... They need to be collaborative. They need to involve stakeholders to be done properly ... All of the jurisdictions will struggle to make that time line just because of the amount of work that's involved, but I'm confident that, given the opportunity, we'll get there.⁵¹

2.41 Mr Gordon said that for licences based on flow volumes, water shepherding is 'changing the whole underpinning methodology of those licences, and that's why it is such a difficult subject'.⁵² Mr Steve Whan (CEO, National Irrigators' Council) said that 'water rights are property rights and... if those rights are changed, that has implications for people's businesses'.⁵³

2.42 Ms Perin Davey (Executive Officer, Southern Riverina Irrigators) said that the northern and southern basins are managed differently, including the Barwon-Darling river system. She said water characteristics must not change and 'if you're going to adjust the rules for one they must be adjusted for all'.⁵⁴

2.43 Cotton Australia's submission acknowledged that there is 'a community expectation of better protection for environmental flows', as well as noting

48 Department of the Environment and Energy, *Submission 38*, p. 23.

49 Department of the Environment and Energy, *Submission 38*, p. 23.

50 Mr Jeremy Morton, President, Ricegrowers' Association of Australia, *Committee Hansard*, Canberra, 20 June 2018, pp. 6-7.

51 Mr Les Gordon, Chair, Water Taskforce, National Farmers' Federation, *Committee Hansard*, Canberra, 23 May 2018, p. 3.

52 Mr Les Gordon, Chair, Water Taskforce, National Farmers' Federation, *Committee Hansard*, Canberra, 23 May 2018, p. 4.

53 Mr Steve Whan, CEO, National Irrigators' Council, *Committee Hansard*, Canberra, 23 May 2018, p. 7.

54 Ms Perin Davey, Executive Officer, Southern Riverina Irrigators, *Committee Hansard*, Albury, 30 April 2018, pp. 24-25.

negotiations with some irrigation entitlement holders to protect individual flow events.⁵⁵ The submission added:

Cotton Australia supports these respectful negotiations, providing everyone recognises that entitlement holders are currently operating within the rules, and those rules were clearly understood at the time the Commonwealth purchased the water entitlements.⁵⁶

2.44 Mr Michael Murray (General Manager, Cotton Australia) said that subject to consultation with stakeholders, water flows could be actively managed on a daily basis to protect environmental water in unregulated river systems.⁵⁷ The National Irrigators' Council submission provided a similar view:

While we are happy to work with Government on the protection of environmental flows in unregulated rivers, it is important to point out that there should be no change to the characteristics of different types of water right. In this context, water owned by a commercial irrigator has exactly the same characteristic and right as the same type of water owned by the Government.⁵⁸

2.45 The Council's submission added:

Most of the Basin's water is in regulated rivers and these rivers do not (generally) have the type of licenses that are involved in the problems outlined. It should also be clear that legal interaction of some licenses on unregulated rivers and environmental flows does not constitute theft.⁵⁹

2.46 The NSW Irrigators' Council submitted that it had 'deep concerns' about shepherding environmental water, including:

- if northern Basin irrigators may forego pumping water so an environmental flow can be protected, the 'next flow may be a long time coming'; and

55 Cotton Australia, *Submission 5*, p. 4.

56 Cotton Australia, *Submission 5*, p. 4.

57 Mr Michael Murray, General Manager, Cotton Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 13; see also Mr Mark McKenzie, CEO, NSW Irrigators' Council, *Committee Hansard*, Sydney, 22 June 2018, p. 22.

58 National Irrigators' Council, *Submission 23*, p. 17.

59 National Irrigators' Council, *Submission 23*, p. 16. The submission commented: 'NIC has zero tolerance for any illegal water take, whether that is by an irrigator or anyone else'.

- protecting environmental water in this way ‘in effect alters the nature of the held environmental water by ceding primacy to it over water rights held by irrigators’.⁶⁰
- 2.47 Ms Emma Bradbury (CEO, Murray-Darling Association) said the ability to measure and account for environmental water with greater precision would ‘make a major contribution to that whole concept of shepherding’.⁶¹
- 2.48 Chapter 3 contains further detail on measuring environmental water and evaluating outcomes.
- 2.49 The MDBA’s submission noted that a compliance review had recently been completed and its recommendations included:
- a possible ‘no meter, no pump’ rule;
 - more transparent compliance policies;
 - reporting of compliance regimes;
 - more effective penalty regimes; and
 - focus on having water resource plans ready by 30 June 2019.⁶²

Compliance issues

- 2.50 In the context of their evidence on the legal protections for environmental water, a number of witnesses and submissions discussed compliance and acknowledged allegations of water being improperly extracted or diverted. A number of references were made to a report on ABC television’s *Four Corners* program in July 2017.⁶³
- 2.51 Mr Michael Murray (General Manager, Cotton Australia) said that reports of water being illegally taken ‘remain allegations’. He said if water is being stolen, irrigators and farmers will respond with ‘white hot anger’ because in most cases, ‘it is not stealing water off the government or stealing water off the environment; it’s stealing another irrigator’s share’.⁶⁴

60 NSW Irrigators’ Council, *Submission 32*, p. 6.

61 Ms Emma Bradbury, CEO, Murray-Darling Association, *Committee Hansard*, Albury, 30 April 2018, p. 25.

62 Murray-Darling Basin Authority, *Submission 34*, p. 8.

63 For example: Cotton Australia, *Submission 5*, p. 3; Queensland Farmers’ Federation, *Submission 13*, p. 4; Department of Agriculture and Water Resources, *Submission 31*, p. 3; Professor Richard Kingsford, private capacity, *Committee Hansard*, Sydney, 22 June 2018, p. 8; see also <<http://www.abc.net.au/4corners/pumped/8727826>>.

64 Mr Michael Murray, General Manager, Cotton Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 16; see also Mr Mark McKenzie, CEO, NSW Irrigators’ Council, *Committee Hansard*, Sydney, 22 June 2018, p. 20; Mr Steve Whan, CEO, National Irrigators’ Council, *Committee Hansard*, Canberra, 23 May 2018, p. 8.

- 2.52 Professor Richard Kingsford (private capacity) said that water pumped from a river is metered before entering a channel linked to a storage dam. Water from a floodplain could fall into a channel, bypass the meter on the river and not be measured. He said that ‘another meter on the pump that takes the water up into the dam’ could be installed, which would be ‘one technical way of measuring how much water is taken’ from floodplains.⁶⁵ Professor Kingsford added that drones and satellite tracking could be other options, although he said these are indirect measures that are ‘never going to get down to the megalitre’.⁶⁶
- 2.53 Mr Murray said measuring water taken from a floodplain in this way is complex, because water held in storage comes from multiple sources, including rainfall run-off.⁶⁷
- 2.54 In November 2017, the Commonwealth Auditor-General conducted a limited assurance review relating to the protection of environmental water in NSW. The Auditor-General’s report noted advice the former CEWH had provided to the Department of Agriculture and Water Resources in April 2016, expressing concerns about the NSW Government’s level of support for environmental water delivery.⁶⁸ The Audit report cited the CEWH’s view on legal protections for environmental water in NSW:

The CEWH also stated that:

in the northern Basin, there appears to be a failure, if not active disinterest by officials in the NSW DPI Water (DPIW) to develop or implement operational arrangements, such as water shepherding and piggybacking, that support the effective delivery of environmental water to achieve agreed Basin Plan objectives. DPIW are not properly managing licensing regimes which allow the cross-border and cross-catchment ‘re-regulation’ of environmental water.⁶⁹

65 Professor Richard Kingsford, private capacity, *Committee Hansard*, Sydney, 22 June 2018, p. 9.

66 Professor Richard Kingsford, private capacity, *Committee Hansard*, Sydney, 22 June 2018, p. 9.

67 Mr Michael Murray, General Manager, Cotton Australia, *Committee Hansard*, Sydney, 22 June 2018, pp. 16-17.

68 Australian National Audit Office Report No. 17 of 2017-18, *Department of Agriculture and Water Resources’ Assessment of New South Wales’ Protection and use of Environmental Water under the National Partnership Agreement on Implementing Water Reform in the Murray-Darling Basin*, November 2017, p. 5 and pp. 16-18.

69 Australian National Audit Office Report No. 17 of 2017-18, *Department of Agriculture and Water Resources’ Assessment of New South Wales’ Protection and use of Environmental Water under the National Partnership Agreement on Implementing Water Reform in the Murray-Darling Basin*, November 2017, p. 17; see also Commonwealth Environmental Water Holder, *Supplementary Submission 2.1*, p. 1.

- 2.55 In the report, the Auditor-General also noted that the ‘following matters have come to my attention’ in regards to the Department of Agriculture and Water Resources’ assessment of NSW performance under the *National Partnership Agreement (NPA) on Implementing Water Reform in the Murray-Darling Basin*:
- the lack of specific, measurable deliverables, and outcome measures in the milestones and criteria for assessing the performance of NSW under the Murray-Darling Basin NPA represent significant weaknesses in the performance framework; and
 - while the Department of Agriculture and Water Resources has followed agreed processes for monitoring performance, there was a lack of evidence and explanation to substantiate its positive assessment of NSW’s progress under Milestone 81 of the Murray-Darling Basin NPA for 2015–16, in light of serious issues raised about the state’s water regulation arrangements. Importantly, there was little in the Department of Agriculture and Water Resources’ submission to the Minister for 2015–16 to suggest that there were risks that NSW was not delivering environmental water consistent with the Basin Plan. These factors have limited the effectiveness of Department of Agriculture and Water Resources’ assessment.⁷⁰
- 2.56 The ANAO Report noted that ‘the Department of Agriculture and Water Resources advised that it does not agree with this finding.’⁷¹
- 2.57 The NSW Government provided a submission noting that legislative reforms are being progressed to improve environmental water management and transparency.⁷² On two occasions, the Committee invited the NSW Office of Environment and Heritage to appear at a public hearing; however, the Office declined.
- 2.58 The CEWH advised that there has been ‘quite a change’ since the *Four Corners* report, with the NSW Government placing a ‘protection order’ on an environmental flow in the Barwon-Darling river system.⁷³
- 2.59 The MDBA’s submission noted that ‘robust compliance systems’ are essential for community confidence and for the CEWH to achieve its

70 Australian National Audit Office Report No. 17 of 2017-18, *Department of Agriculture and Water Resources’ Assessment of New South Wales’ Protection and use of Environmental Water under the National Partnership Agreement on Implementing Water Reform in the Murray-Darling Basin*, November 2017, p. 5.

71 Australian National Audit Office Report No. 17 of 2017-18, p. 6.

72 NSW Government, *Submission 17*, p. 10.

73 Ms Jody Swirepik, Commonwealth Environmental Water Holder and Mr Mark Taylor, Assistant Secretary, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, pp. 2-3.

environmental outcomes from recovered water.⁷⁴ Audits and investigations may be commenced 'in response to specific incidents or intelligence reports'.⁷⁵ The MDBA submitted:

... it is the role of all Basin governments to ensure effective compliance systems are in place and enforced across the Basin to ensure water is properly used within each jurisdiction.⁷⁶

- 2.60 The Department of Agriculture and Water Resources noted that governments have agreed to a draft 'Basin Compliance Compact', which includes 'timeframes to improve water metering and measurement of water take'.⁷⁷
- 2.61 This Committee does not have a role in investigating or resolving individual allegations of illegal take or water theft.

Environmental watering and third-party impacts

- 2.62 The CEWH has a responsibility to minimise risks to communities when conducting environmental watering activities, to avoid any unintended impacts on third parties.⁷⁸ A range of potential impacts relating to environmental water were discussed during the inquiry, including:
- the potential for private property to be flooded;
 - possible changes to water quality or river conditions;
 - channel capacity limitations, particularly a narrow section of the Murray River at the Barmah Choke; and
 - occupying water storage space and holding excess environmental water for future use ('carryover').
- 2.63 The CEWH follows a practice known as the 'good neighbour' policy. The policy aims to promote mutually beneficial relationships with other water users and landholders, subject to the CEWH's legal obligations.⁷⁹ The Department of the Environment and Energy's submission observed:

74 Murray-Darling Basin Authority, *Submission 34*, p. 8.

75 Department of the Environment and Energy, *Supplementary Submission 38.1*, p. 1 (MDBA response to Question 1).

76 Murray-Darling Basin Authority, *Submission 34*, p. 8.

77 Department of the Environment and Energy, *Supplementary Submission 38.1*, p. 4 (DAWR response to Question 4). A copy is available at <https://www.mdba.gov.au/sites/default/files/pubs/compliance-compact.pdf>.

78 Department of the Environment and Energy, *Submission 38*, p. 16.

79 Department of the Environment and Energy, *Submission 38*, p. 16.

Operating effectively in a working river system where much of Australia's food and fibre is produced necessitates that environmental water management must co-exist with agricultural production in a mutually respectful and harmonious manner.⁸⁰

2.64 The Department's submission described how the policy operates:

- The CEWH has not, and will not, place water orders that would flood private land without the consent of the landholder.
- An appropriate share of the channel capacity in a river system is used by the CEWH for environmental watering so as not to impact on agricultural producers.
- The [Commonwealth Environmental Water] Office works closely with communities and delivery partners (including state agencies, river operators and local advisory groups) so they can engage meaningfully on Commonwealth environmental water management.⁸¹

2.65 A submission from the Victorian Government noted that infrastructure works 'provide a way to target sites that cannot otherwise be watered due to the risk of third-party impacts'.⁸²

2.66 Mr Hugo Hopton (CEO, Nature Foundation SA) said that the good neighbour policy in effect relegates environmental water to second place in preference to irrigators' water. He said this deferment means the release of environmental water may not coincide with fish breeding. While Mr Hopton agreed that the policy had generated goodwill, he said:

The CEWH has been out there, sitting in on kitchen table meetings and local meetings, creating and maintaining the dialogue. That is wonderful, but we do need every person and every community to understand striking the balance. There's no point in having a really prosperous citrus orchard while having the foreshore of a river town dying because there's no water for environmental watering.⁸³

2.67 Mr Terry Hillman (Member, Wentworth Group of Concerned Scientists) suggested that to 'back off' environmental water may lead to missed opportunities.⁸⁴ He said:

80 Department of the Environment and Energy, *Submission 38*, p. 16.

81 Department of the Environment and Energy, *Submission 38*, p. 17.

82 Victorian Government, *Submission 41*, appendix 3, p. 13.

83 Mr Hugo Hopton, CEO, Nature Foundation SA, *Committee Hansard*, Murray Bridge, 2 May 2018, pp. 15-16.

84 Mr Terry Hillman, Member, Wentworth Group of Scientists, *Committee Hansard*, Albury, 30 April 2018, p. 26.

...that deprives us of the capacity to experiment with this to try to work out ways where we can share space better – in particular, channel space and, basically, river space.⁸⁵

2.68 Other views favoured the good neighbour policy. For example, Mr Michael Murray (General Manager, Cotton Australia) said:

I think the work that they've done to date has been very good. They've tried to minimise any negative impacts that they may have on neighbours and water markets and the like, and they've tried to work in with extractive users as much as possible.⁸⁶

2.69 The NSW Irrigators' Council submitted that the good neighbour policy should be 'formally enshrined' in the CEWH's environmental water management framework.⁸⁷

2.70 While there had been instances of environmental water releases being paused to conform with the good neighbour policy, Ms Jody Swirepik (Commonwealth Environmental Water Holder) said:

...fundamentally we would also say that, because we have a water right in the system, on a ratio basis we should be able to have our water delivered down the system like other water users. So we are not fundamentally giving up our right. We still believe we should have the same rights and responsibilities.⁸⁸

2.71 Issues relating to the good neighbour policy are also discussed in Chapter 4, in the context of community awareness and engagement.

Flooding private property

2.72 The Committee received evidence from people concerned about the potential for environmental water flows flooding private land.

2.73 A submission from the NSW Irrigators' Council discussed the potential for large volumes of environmental water to flood private property. The submission also stated that liability for unmitigated third party impacts from environmental watering should be settled prior to large-scale environmental water releases.⁸⁹ The submission added:

85 Mr Terry Hillman, Member, Wentworth Group of Scientists, *Committee Hansard*, Albury, 30 April 2018, p. 26.

86 Mr Michael Murray, General Manager, Cotton Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 15.

87 NSW Irrigators' Council, *Submission 32*, p. 3 and p. 5.

88 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 4.

89 NSW Irrigators' Council, *Submission 32*, p. 3.

Despite MDBA modelling that indicates that sub-flood level flows can be manipulated to meet Basin Plan end-of-system flow rates sufficient to keep the Murray Mouth open 90% of the time, NSWIC holds very serious doubts that the CEWH will be able to physically deliver the flow rates modelled by the MDBA to the end of the Murray system without causing very significant flooding of private property.⁹⁰

2.74 Mr Carl Binning (Executive Director, Partnerships Division, Murray-Darling Basin Authority) said:

There is no doubt that getting larger flows through the system is required to move the body of sand that sits at the Murray Mouth to keep the Murray Mouth open.⁹¹

2.75 A submission from Jan Beer stated that some property owners are 'resolute in their determination not to negotiate flood easements'. The submission added that channel capacity constraints 'cannot be mitigated' and the 'massive costs... cannot be justified' to flood public and private property.⁹²

2.76 Ms Jody Swirepik (Commonwealth Environmental Water Holder) told the Committee that there is a policy not to flood private property without the landholder's consent.⁹³

2.77 However, Mr Binning said that the Basin Plan has envisaged relaxing operating constraints so floodplains can be watered, particularly for black box and red gum forests.⁹⁴ He added:

That will involve, between now and 2024, detailed consultation with communities... and investment in infrastructure to allow those high flows. ... It's one of the most difficult parts of the reform because it involves balancing the need to get water out of the river bank, which is what's needed environmentally, along with the rights and the livelihoods of people who live along the river.⁹⁵

90 NSW Irrigators' Council, *Submission 32*, p. 5.

91 Mr Carl Binning, Executive Director, Partnerships Division, Murray-Darling Basin Authority, *Committee Hansard*, Canberra, 27 June 2018, p. 4.

92 Jan Beer, *Submission 4*, p. 2.

93 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 4.

94 Mr Carl Binning, Executive Director, Partnerships Division, Murray-Darling Basin Authority, *Committee Hansard*, Canberra, 27 June 2018, p. 4.

95 Mr Carl Binning, Executive Director, Partnerships Division, Murray-Darling Basin Authority, *Committee Hansard*, Canberra, 27 June 2018, p. 4; see also Professor Michael Stewardson, University of Melbourne, *Committee Hansard*, Albury, 30 April 2018, p. 9.

- 2.78 Mr Binning said the Australian environment depends on floods from time to time and, although there may be impacts on communities, there are also environmental benefits.⁹⁶

Water quality

- 2.79 When floodplains are inundated with water, accumulated debris is flushed away. This can result in 'blackwater' events. Infrequent flooding causes more debris to accumulate and, when a flood eventually occurs, the water is overloaded with organic matter (for example, leaves from red gum trees) and the blackwater becomes harmful. Oxygen levels are reduced, which may affect fish populations or lead to fish deaths.⁹⁷
- 2.80 Mr Carl Binning (Executive Director, Partnerships Division, Murray-Darling Basin Authority) explained that smaller, managed floods would mitigate the size of blackwater events.⁹⁸
- 2.81 The Committee received two submissions stating that environmental water is negatively affecting water quality and causes blackwater events.⁹⁹
- 2.82 However, others agreed with Mr Binning's evidence, observing that blackwater events are natural, provide an overall benefit for rivers and that environmental watering mitigates the risks.¹⁰⁰ Professor Nick Bond (La Trobe University) said that despite perceptions, there is 'nothing to suggest' environmental water had recently contributed to blackwater.¹⁰¹ Rather, environmental water creates opportunities to manage how often accumulated material is washed away.¹⁰² Professor Bond explained:

...under the natural flow regime... there were more frequent opportunities for that carbon to be removed from the flood plain through leaching at much lower concentrations, because of the

96 Mr Carl Binning, Executive Director, Partnerships Division, Murray-Darling Basin Authority, *Committee Hansard*, Canberra, 27 June 2018, p. 5; see also Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 5.

97 Professor Nick Bond, La Trobe University, *Committee Hansard*, Albury, 30 April 2018, p. 14; Nature Foundation SA Inc, *Submission 22*, p. 3; see also Geoscience Australia, 'Anoxic and Hypoxic Events', at <http://www.ozcoasts.gov.au/indicators/anoxic_hypoxic_events.jsp>.

98 Mr Carl Binning, Executive Director, Partnerships Division, Murray-Darling Basin Authority, *Committee Hansard*, Canberra, 27 June 2018, p. 5.

99 Ian Boyle, *Submission 3*, p. 1; Jan Beer, *Submission 4*, p. 1.

100 Sarah Moles, *Submission 6*, p. 2; Nature Foundation SA Inc, *Submission 22*, p. 3; Nature Conservation Council NSW, *Submission 24*, p. 5; South Australian Government, *Submission 40*, p. 7.

101 Professor Nick Bond, La Trobe University, *Committee Hansard*, Albury, 30 April 2018, p. 10.

102 Professor Nick Bond, La Trobe University, *Committee Hansard*, Albury, 30 April 2018, p. 14.

lower accumulation of organic material between those flood events.¹⁰³

- 2.83 Dr Jonathan Howard (Charles Sturt University) cautioned against benchmarking the CEWH's performance on thresholds of water volume or money spent, noting that 'improvements in water quality are also needed'.¹⁰⁴
- 2.84 Environmental water could be used to flood land more often to minimise blackwater events, although reaching elevated areas presents challenges. As discussed above, there is opposition to flooding private land. Professor Michael Stewardson (University of Melbourne) said that to avoid impacts on riparian landowners, the CEWH had been 'heavily constrained' when attempting to replicate higher flows.¹⁰⁵ Dr Angus Webb (University of Melbourne) noted that water could be pumped onto floodplains, which uses smaller volumes than a natural flood.¹⁰⁶

Channel capacity

- 2.85 The Murray River's channel capacity is particularly limited at the Barmah Choke, upstream from Echuca along the Victorian and NSW border. Southern Riverina Irrigators observed that silting and a lack of maintenance limits the volume of water that can pass to around 8,000 megalitres daily.¹⁰⁷
- 2.86 Professor Richard Kingsford said that where channel space is limited, this poses challenges for consumptive and environmental water users in terms of who takes priority.¹⁰⁸ The CEWH's website states:

At times of critical environmental need, the Commonwealth may assert its rights to access its share of channel capacity. However, in the event of channel capacity becoming limited, we can be flexible about how and when environmental water is ordered so as to minimise any potential impact on others.¹⁰⁹

103 Professor Nick Bond, La Trobe University, *Committee Hansard*, Albury, 30 April 2018, p. 14.

104 Dr Jonathan Howard, *Submission 16*, p. 3.

105 Professor Michael Stewardson, University of Melbourne, *Committee Hansard*, Albury, 30 April 2018, p. 9.

106 Dr Angus Webb, University of Melbourne, *Committee Hansard*, Albury, 30 April 2018, p. 15.

107 Southern Riverina Irrigators, *Submission 21*, p. 4.

108 Professor Richard Kingsford, private capacity, *Committee Hansard*, Sydney, 22 June 2018, p. 7.

109 Department of the Environment and Energy, 'Planning - Approach to managing Commonwealth environmental water' at <http://www.environment.gov.au/water/cewo/about/planning>.

- 2.87 Mr Ian Davidson (Chair, Murray Darling Wetlands Working Group) said the Barmah Choke is ‘the vital pinch point in the whole system’.¹¹⁰ Mr Terry Hillman (Member, Wentworth Group of Concerned Scientists) explained that water is collected and stored over the winter for release during the summer; however, he said that the surrounding Barmah-Millewa Forest is naturally accustomed to flooding in winter and being dry in summer.¹¹¹
- 2.88 The Environmental Defenders Office Australia submitted that there has been ‘insufficient action’ to remove constraints at sites such as the Barmah Choke.¹¹² The submission stated:
- It is crucial that concrete steps are taken to remove constraints so as to allow for sufficient volumes of environmental water to be delivered to key locations. Failure to address this issue will undermine proper implementation of the Basin Plan...¹¹³
- 2.89 The South Australian Government submitted that the Coorong, Lower Lakes and Murray Mouth need water during the summer, when the CEWH tends to observe its good neighbour policy and does not compete for channel capacity. The submission stated that this policy limits the CEWH’s ability to deliver sufficient water volumes at ‘crucial times’.¹¹⁴ The submission noted:
- ...the Barmah Choke will be key to overcoming this. If not addressed, the key objectives of the Basin Plan in this area may be undermined.¹¹⁵
- 2.90 Mr Davidson said the solution to channel capacity is a ‘big investment’, although he noted that as it is situated on the border of Victoria and NSW, ‘there is no real champion’ to remedy this section of the Murray River.¹¹⁶ Murray Irrigation suggested that its infrastructure could be used to bypass the Barmah Choke constriction.¹¹⁷

110 Mr Ian Davidson, Chair, Murray Darling Wetlands Working Group, *Committee Hansard*, Albury, 30 April 2018, p. 27.

111 Mr Terry Hillman, Member, Wentworth Group of Scientists, *Committee Hansard*, Albury, 30 April 2018, p. 27.

112 Environmental Defenders Office Australia, *Submission 28*, p. 4; see also Southern Fishermen’s Association, *Submission 37*, p. 6.

113 Environmental Defenders Office Australia, *Submission 28*, p. 4.

114 South Australian Government, *Submission 40*, p. 6.

115 South Australian Government, *Submission 40*, p. 6.

116 Mr Ian Davidson, Chair, Murray Darling Wetlands Working Group, *Committee Hansard*, Albury, 30 April 2018, p. 28.

117 Murray Irrigation, *Submission 30*, p. 8; see also Minister for Agriculture and Water Resources, media release, 14 September 2018, ‘Delivering Water Faster in the Southern Murray-Darling’,

2.91 In its submission, the NSW Irrigators' Council noted that nut tree plantations in the lower end of the Murray River would increase demand for irrigated water (when added to existing requirements), exacerbate channel constraints and potentially lead to 'conflicting demands'.¹¹⁸ The submission continued:

If these environmental flows were shepherded using significant channel capacity it would be delivering licence primacy to environmental water at the expense of other water access licence holders and would put the CEWH in direct conflict with irrigators. As a consequence ... the 'good neighbour' policy previously employed by the CEWH should be formalised in CEWH water deployment planning to avoid such conflicts.¹¹⁹

2.92 In response to these concerns, Ms Jody Swirepik (Commonwealth Environmental Water Holder) said:

With the increasing competition for channel capacity in a few parts of the basin, I think there will need to be some work done by governments in consultation with water users to look at how we might share that water channel capacity and what that means for different types of users. ...there is a recognition within government that we need to undertake some work around channel capacity sharing.¹²⁰

2.93 The Department of the Environment and Energy's submission noted that there are prospective projects relating to removing physical constraints or barriers to environmental flows.¹²¹

Storage capacity and 'carryover'

2.94 Unexpected rainfall may fill rivers and lakes naturally at the right times and places. In this situation, the CEWH adjusts his or her plans and may hold more environmental water than is necessarily required for immediate use. The CEWH can elect to hold (or save) surplus environmental water in storage for future use – a practice known as 'carryover'.

2.95 Ms Emma Bradbury (CEO, Murray Darling Association) said that holding environmental water in storages 'occupies airspace otherwise used for

at <<http://minister.agriculture.gov.au/littleproud/Pages/Media-Releases/delivering-water-faster-in-the-sthn-mdb.aspx>>.

118 NSW Irrigators' Council, *Submission 32*, p. 6.

119 NSW Irrigators' Council, *Submission 32*, p. 7.

120 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 4.

121 Department of the Environment and Energy, *Submission 38*, p. 27; see also Murray-Darling Basin Authority, *Submission 34*, p. 10.

irrigation water and has the effect of triggering spills'. She said this 'can and does create economic losses'.¹²²

2.96 Ms Perin Davey (Executive Officer, Southern Riverina Irrigators) said that in these circumstances, there may be scope to adjust private water accounts to compensate. In very wet years, she said dam spills could be deemed to be an environmental water delivery, given this assists with the CEWH's overall objectives.¹²³

2.97 Ms Jody Swirepik (Commonwealth Environmental Water Holder) said that 'our rights to carryover water are the same as other water users in the system'.¹²⁴ Mr Hilton Taylor (Assistant Secretary, Department of the Environment and Energy) said that Commonwealth environmental water represents about three per cent of water in storages.¹²⁵ He said that the environmental watering season runs counter-cyclical to the irrigation season at a time when dams are filling with water:

So by running counter-cyclically, we're in fact creating air space at a good time for other water holders and we're getting the environmental benefits, and it's quite intentional that we do maintain carryover from year to year.¹²⁶

2.98 Mr Hilton said that 'carryover is critical for us to be able to maintain those activities across water years'.¹²⁷

Trading and selling environmental water

2.99 The CEWH can trade environmental water, subject to the provisions of the *Water Act 2007* (Cth) (Water Act) and guided by the 'Commonwealth Environmental Water Trading Framework'.¹²⁸ Nine operating rules guide CEWH water trading decisions:

122 Ms Emma Bradbury, CEO, Murray Darling Association, *Committee Hansard*, Albury, 30 April 2018, p. 22; Murray Darling Association, *Submission 27*, p. 3.

123 Ms Perin Davey, Executive Officer, Southern Riverina Irrigators, *Committee Hansard*, Albury, 30 April 2018, p. 26.

124 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 5.

125 Mr Hilton Taylor, Assistant Secretary, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 6.

126 Mr Hilton Taylor, Assistant Secretary, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 6.

127 Mr Hilton Taylor, Assistant Secretary, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 6.

128 Department of the Environment and Energy, *Submission 38*, p. 19.

1. The CEWH will not trade if aware of a water announcement that has not been made generally available.
2. All trades will be undertaken using a competitive process.
3. Decisions to trade will be informed by a market assessment.
4. Price limits to be used in any trading action.
5. Consistent, equitable and transparent assessment of trade offers.
6. Regular guidance on trading intentions.
7. Trading actions to be announced prior to trade.
8. Market information to be released prior to each trading action.
9. Public reporting following trading actions.¹²⁹

2.100 The Department of the Environment and Energy advised:

Since 2014 the CEWH has sold 39.9 gigalitres of water allocations in four trading actions, worth \$12.6 million. The proceeds of trade are held in the Environmental Water Holdings Special Account. Less than 0.5 per cent of the allocations received by the CEWH have been sold to date.¹³⁰

2.101 The submission stated that the CEWH is 'likely' to participate in the water market more often, with trades being conducted by an open tender.¹³¹

2.102 Submissions and witnesses discussed the CEWH's role in the water trading market. The National Irrigators' Council characterised the CEWH's position as being 'significant', given it is 'by far the biggest owner of water in the Murray-Darling Basin'.¹³²

2.103 In contrast, Dr Jonathan Howard described such language as 'reckless' because, in his view, irrigated agriculture remains the single largest holder of water entitlements in the Basin in an overall sense.¹³³ However, Dr Howard supported the prospect of environmental water being sold:

The CEWH could realise an integrated approach by being able to sell water, under a set of clear guidelines, on the open market. The

129 Commonwealth Environmental Watering Office, *Commonwealth Environmental Water Trading Framework*, January 2014, pp. 14-17, at <http://www.environment.gov.au/water/cewo/publications/water-trading-framework>.

130 Department of the Environment and Energy, *Submission 38*, p. 20.

131 Department of the Environment and Energy, *Submission 38*, p. 21.

132 National Irrigators' Council, *Submission 23*, p. 3; Mr Gavin McMahon, Chairman, National Irrigators' Council, *Committee Hansard*, Mildura, 1 May 2018, p. 18; see also Cotton Australia, *Submission 5*, p. 2.

133 Dr Jonathan Howard, *Submission 16*, p. 1; see also Nature Conservation Council NSW, *Submission 24*, pp. 1-2.

money obtained could be used to resource the associated other works needed to make environmental water most effective.¹³⁴

- 2.104 A submission from Cotton Australia supported the CEWH's ability to trade water allocations and entitlements.¹³⁵ The National Irrigators' Council (among others) submitted that the proceeds of trading environmental water could be used to fund complementary measures.¹³⁶ (Complementary measures are discussed later in this chapter.)
- 2.105 The Ricegrowers' Association of Australia supported granting 'further flexibility in regards to the trade of environmental water';¹³⁷ however, the Association's submission noted:
- ...it is also critical that the involvement of environmental water agencies in the market does not have a material impact on the ability of other water users to trade water.¹³⁸
- 2.106 The Gwydir Valley Irrigators' Association described the ability to trade water as a 'critical step' allowing the CEWH to generate revenue to invest in projects. The Association's submission cited the CEWH's sale of 6.7 gigalitres to Gwydir irrigators in January 2018 for \$2.8 million to water their crops.¹³⁹ Mr Mark Winter (Vice-Chair, Gwydir Valley Irrigators' Association) said that less water for production in the Moree area has had 'a big effect on the town, on the jobs and the dollars going around the whole community'.¹⁴⁰
- 2.107 A submission from the Nature Conservation Council NSW opposed trading held environmental water. The Council's submission suggested that trades in the Gwydir Valley may be based on 'political pressure rather than a considered approach based on the environmental condition of key assets in the catchment'.¹⁴¹ The submission stated:

The lack of transparency around the decision-making process for CEWH water trading is a key issue. Commonwealth held

134 Dr Jonathan Howard, *Submission 16*, p. 3.

135 Cotton Australia, *Submission 5*, p. 2.

136 National Irrigators' Council, *Submission 23*, pp. 8-9; see also Cotton Australia, *Submission 5*, p. 2; Queensland Farmers' Federation, *Submission 13*, p. 3; NSW Irrigators' Council, *Submission 32*, p. 4.

137 Ricegrowers' Association of Australia, *Submission 19*, p. 7 and p. 8.

138 Ricegrowers' Association of Australia, *Submission 19*, p. 7.

139 Gwydir Valley Irrigators' Association, *Submission 39*, p. 5; see also Department of the Environment and Energy, 'Sale of Gwydir water allocation provides win-win' at <<https://www.environment.gov.au/water/cewo/media-release/sale-gwydir-water-allocation-provides-win-win>>.

140 Mr Mark Winter, Vice Chair, Gwydir Valley Irrigators' Association, *Committee Hansard*, Canberra, 30 May 2018, p. 6.

141 Nature Conservation Council NSW, *Submission 24*, p. 3.

environmental water was purchased with taxpayers' funds to protect and restore environmental assets. The public have the right to know how this water is being managed in a transparent manner.¹⁴²

- 2.108 The CEWH said that its approach to trading to date has been cautious and conducted within the requirements of the Commonwealth Procurement Rules.¹⁴³
- 2.109 The South Australian Government indicated that it 'does not support any further changes to the capacity of the CEWH to trade environmental water'.¹⁴⁴

Complementary measures

- 2.110 A number of submissions and witnesses recommended a greater use of complementary or toolkit measures, which do not necessarily require or rely on environmental water flows.¹⁴⁵ Examples of complementary measures proposed during the inquiry include the following:
1. pest and feral animal control, such as carp eradication and culling wild pigs;
 2. weed control;
 3. mitigation of cold water pollution;
 4. improved passages for fish migration; and
 5. improved fish habitats.¹⁴⁶
- 2.111 The Department of the Environment and Energy noted that since 2016 amendments to the Water Act to allow greater scope to trade environmental water,¹⁴⁷ an investment framework is being developed.

142 Department of the Environment and Energy, *Submission 38*, p. 19.

143 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 28 March 2018, p. 8.

144 South Australian Government, *Submission 40*, p. 12.

145 Cotton Australia, *Submission 5*, p. 2; Queensland Farmers' Federation, *Submission 13*, p. 3; Ricegrowers' Association of Australia, *Submission 19*, p. 5; National Irrigators' Council, *Submission 23*, p. 5; Murray Irrigation, *Submission 30*, p. 6.

146 National Irrigators' Council, *Submission 23*, pp. 5-8; see also Cotton Australia, *Submission 5*, p. 2; Deakin University, *Submission 10*, p. 2; Ricegrowers' Association of Australia, *Submission 19*, p. 5; Mr Mark Winter, Vice Chair, Gwydir Valley Irrigators Association Inc, *Committee Hansard*, Canberra, 30 May 2018, p. 10; Professor Richard Kingsford, private capacity, *Committee Hansard*, 22 June 2018, p. 10.

147 The Water Amendment (Review Implementation and Other Measures) Bill 2015 repealed and replaced s. 106 of the *Water Act 2007* (Cth). The amendment took effect from 5 May 2016 and allows the CEWH greater flexibility to trade water.

This framework is intended to ‘guide the CEWH on how and what types of environmental activities should be considered for investment’.¹⁴⁸ The submission noted that proceeds raised would not necessarily be invested in the same catchment from which water was traded.¹⁴⁹

2.112 The Gwydir Valley Irrigators’ Association Inc submitted there are a ‘myriad of constraints’ limiting the effective use of environmental water and, with targeted complementary measures, ‘environmental water managers will be more likely to achieve environmental outcomes... in the best interests of communities and the broader public’.¹⁵⁰

2.113 Murray Irrigation noted that Landcare groups could ‘rally volunteers to revegetate riparian regions or undertake wetland rehabilitation’.¹⁵¹ The National Irrigators’ Council suggested that CEWH investment in complementary measures projects could involve in-kind contributions from third parties, such as machinery, labour and professional advice.¹⁵²

2.114 A submission from the Environmental Defenders Office Australia did not support using complementary measures:

There is no credible evidence base to support this approach, particularly in light of the fact that the SDLs [sustainable diversion limits] set under the Basin Plan are unlikely to satisfy the definition of an environmentally sustainable level of take (ESLT).¹⁵³

2.115 The submission added: ‘natural resource management should be additional to – not a substitute for – water for the environment’.¹⁵⁴

2.116 A submission from Murray Lower Darling Rivers Indigenous Nations opposed the use of infrastructure or engineering works in place of ‘real water delivery’. The submission stated:

Infrastructure projects and environmental water ‘offsets’ entail considerable risks to cultural heritage and water-dependent cultural values. They also risk ecological impacts if implemented without appropriate environmental criteria and safeguards.¹⁵⁵

148 Department of the Environment and Energy, *Submission 38*, p. 21. The Department’s submission also included examples of projects that could be considered.

149 Department of the Environment and Energy, *Submission 38*, p. 22.

150 Gwydir Valley Irrigators’ Association Inc, *Submission 39*, p. 5.

151 Murray Irrigation, *Submission 30*, p. 11.

152 National Irrigators’ Council, *Submission 24*, p. 9.

153 Environmental Defenders Office Australia, *Submission 28*, p. 6. An ‘environmentally sustainable level of take’ is the amount of water that can be taken from that water resource without compromising its environmental, ecological, productive base or environmental outcomes; see *Water Act 2007* (Cth) s. 3.

154 Environmental Defenders Office Australia, *Submission 28*, p. 6.

155 Murray Lower Darling Rivers Indigenous Nations, *Submission 26*, p. 4.

2.117 The NSW Irrigators' Council submitted that 'steady progress' has been achieved and did not support reserving more water for the environment, stating that the position of environment groups 'ignores the already significant damage to the social and economic fabric of Basin communities from the current level of water recovery'.¹⁵⁶ Instead, it submitted that the Water Act should be amended again to provide the CEWH with further flexibility to trade environmental water, 'including investment in local water management infrastructure where this can significantly increase environmental watering efficiencies'.¹⁵⁷

Pumping water into wetlands

2.118 Pumps and pipes can be used take water from the Murray River over elevated land and into surrounding creeks, which flow into nearby lakes and wetlands. Relying on natural flows would require vastly greater quantities of water to achieve the same outcome.¹⁵⁸

2.119 The suitability of pumps and pipes was discussed during the inquiry and the Committee inspected a pump station at Chalka Creek, in the Hattah Lakes area in north-western Victoria.

2.120 Dr Angus Webb (University of Melbourne) said that pumping water over physical barriers meant the natural floodplain could be bypassed and a wetland can be filled with 'a far smaller volume of water than a natural flood'.¹⁵⁹ Murray Irrigation noted how infrastructure could be used:

...there are physical solutions such as infrastructure construction (regulators, pump sites) and upgrades that can assist in the delivery of volumes of water to specific sites to contribute to the maintenance and improvement of the environment.¹⁶⁰

156 NSW Irrigators' Council, *Submission 32*, p. 2.

157 NSW Irrigators' Council, *Submission 32*, p. 3.

158 Department of the Environment and Energy, *Submission 38*, p. 28.

159 Dr Angus Webb, University of Melbourne, *Committee Hansard*, Albury, 30 April 2018, p. 15.

160 Murray Irrigation, *Submission 30*, p. 6.



Pumps at Chalka Creek in the Hattah Lakes area

2.121 However, Dr Anne Jensen (private capacity) said that Hattah Lakes have a single inlet channel suited to a water pump solution. She said other cases may not be as effective:

...if you want to flood the channel of a flood plain, and you use a regulator to do it with much less water, you do not get the connectivity through all the creeks, through flooding out onto the floodplain and bringing that biomass back into the river.¹⁶¹

2.122 Dr Clayton Sharpe agreed that these techniques involve lower rates of water use; however, he cautioned:

The natural cues for flooding for biota that are adapted to respond to floods aren't present and they disconnect really important processes between the river and its floodplain as well ...they can work for some elements of the ecosystem but they are not the answer.¹⁶²

2.123 Dr Sharpe added that reducing water volumes in real terms could have implications for native fish, such as the golden perch in the Menindee Lakes.¹⁶³ Professor Richard Kingsford said that measures such as carp eradication need to be pursued; however, he noted: 'I think it all helps, but it doesn't replace the water'.¹⁶⁴

161 Dr Anne Jensen, *Committee Hansard*, Murray Bridge, 2 May 2018, p. 12.

162 Dr Clayton Sharpe, private capacity, *Committee Hansard*, Mildura, 1 May 2018, p. 12.

163 Dr Clayton Sharpe, private capacity, *Committee Hansard*, Mildura, 1 May 2018, p. 12.

164 Professor Richard Kingsford, private capacity, *Committee Hansard*, Sydney, 22 June 2018, p. 10.

- 2.124 An alternative approach is to ‘piggyback’ water to achieve higher river flows with less water (discussed below).

Infrastructure upgrades and water efficiency

- 2.125 The Department of Agriculture and Water Resources administers funding for projects designed to improve water use efficiency in the Basin area.¹⁶⁵ Water saved can then become part of the Commonwealth’s environmental water holdings.¹⁶⁶ A submission from the Department of Agriculture and Water Resources advised:

The Department is prioritising investment in infrastructure over water purchasing to implement the Basin Plan in a way that supports strong agricultural industries and local communities, as well as a healthy environment.¹⁶⁷

- 2.126 Projects could include:

- works on off-farm irrigation systems;
- works on farms to improve water use efficiency;
- works to improve ecological health and restore natural flows;
- water saving municipal projects; and
- environmental works and changes to river operations that enable the same environmental outcomes to be achieved with less water.¹⁶⁸

- 2.127 Dr Angus Webb (University of Melbourne) observed:

I think the decision to recover a substantial proportion of the water through infrastructure upgrades is effectively an investment in social infrastructure in the basin. We could have purchased total basin plan volumes of water on the open market, but economic and social damage would have been that much greater. ... A

165 Department of Agriculture and Water Resources, ‘Sustainable Rural Water Use and Infrastructure Program’, at <<http://www.agriculture.gov.au/water/mdb/programs/basin-wide/srwiup>>. Around \$238 million is allocated to this program in 2018-19; see Department of Agriculture and Water Resources, ‘Portfolio Budget Statements 2018-19 – Budget Related Paper No. 1.1’, p. 57.

166 Department of Agriculture and Water Resources, *Submission 31*, p. 1; see also Murray-Darling Basin Authority, *Submission 34*, p. 11.

167 Department of Agriculture and Water Resources, *Submission 31*, p. 1; see also Department of the Environment and Energy, *Supplementary Submission 38.1*, pp. 2-3 (DAWR response to Question 2).

168 Department of Agriculture and Water Resources, ‘Sustainable Rural Water Use and Infrastructure Program’, at <<http://www.agriculture.gov.au/water/mdb/programs/basin-wide/srwiup>>.

decision was made to pay more to look after basin communities
...an understandable decision was taken.¹⁶⁹

- 2.128 Some witnesses and submissions questioned whether these projects are providing value for money. Professor Lin Crase suggested that the benefits of irrigation upgrades accrue to a small group within regional communities and 'the flow-on effects of an irrigation upgrade accrue to very few'.¹⁷⁰ He submitted:

If governments were genuinely concerned about the prosperity of rural and regional communities and engaging on environmental water they would invest in those activities that yielded the greatest public benefit. Improving public infrastructure rather than private irrigation infrastructure would be a useful starting point.¹⁷¹

- 2.129 A submission from the Southern Fishermen's Association stated that proposed water saving projects 'lack transparency' and there is 'no detailed information available... showing exactly how much water could be saved and returned to the river'.¹⁷²

- 2.130 Ms Emma Bradbury (CEO, Murray Darling Association) said that investment in on-farm efficiency infrastructure benefits communities, but only 'up to a certain point' and then it 'starts to benefit just individual landholders and farmers'.¹⁷³

- 2.131 Southern Riverina Irrigators commented that water recovery 'effectively puts a cap on the productivity in our area' and potentially reduces the potential for economic growth.¹⁷⁴ The Ricegrowers' Association of Australia submitted that increasing the total supply available to all water users (by a small percentage) would improve productivity:

For the rice industry, an additional 400 gigalitres of water supply is equivalent to an additional 400,000 tonnes of rice per annum or \$120 million of farm-gate value (based on a value of \$300 per tonne).¹⁷⁵

169 Dr Angus Webb, Melbourne University, *Committee Hansard*, Albury, 30 April 2018, p. 18.

170 Professor Lin Crase, *Submission 1*, p. 5.

171 Professor Lin Crase, *Submission 1*, p. 5.

172 Southern Fishermen's Association, *Submission 37*, p. 5.

173 Ms Emma Bradbury, CEO, Murray Darling Association, *Committee Hansard*, Albury, 30 April 2018, p. 23.

174 Mrs Gabrielle Coupland, Chair, Southern Riverina Irrigators, *Committee Hansard*, Albury, 30 April 2018, p. 23.

175 Ricegrowers' Association of Australia, *Submission 19*, p. 8.

2.132 The Environmental Defenders Office Australia submitted that on-farm efficiency works 'are likely to increase (rather than reduce) consumptive use'.¹⁷⁶ The submission stated:

It is deeply concerning that one of the core planks of the Commonwealth's water recovery program is not only fundamentally flawed, but is lacking in any sort of appropriate oversight ...in the absence of the necessary checks and balances, public money may be misused at the expense of the environment and other users in the Basin.¹⁷⁷

2.133 The submission added that these farm efficiency programs may be subsidising the expansion of private storages to capture overland flows, which could include CEWH environmental water.¹⁷⁸ At a subsequent public hearing, the Office clarified that 'we support incentives for farmers to put in water efficiency measures', provided there is auditing, transparency and more detail on what is working.¹⁷⁹

2.134 In response, Mr Tim Fischer (Assistant Secretary, Department of Agriculture and Water Resources) said:

To the extent that there is a problem with return flows, that problem would exist anyway as irrigators invest by themselves and irrigation delivery corporations invest in upgrading their delivery systems and reducing leakage. To a certain extent, this problem exists and will continue to exist in the future irrespective of the government's efforts in recovering water through infrastructure programs.¹⁸⁰

2.135 Mr Fisher added that irrigators have the right to develop their properties and make use of their water entitlements as efficiently and effectively as possible.¹⁸¹

176 Environmental Defenders Office Australia, *Submission 28*, p. 5.

177 Environmental Defenders Office Australia, *Submission 28*, pp. 5-6.

178 Environmental Defenders Office Australia, *Submission 28*, p. 7

179 Ms Rachel Walmsley, Policy and Law Reform Director, Environmental Defenders Office of Australia, *Committee Hansard*, Sydney, 22 June 2018, p. 4.

180 Mr Tim Fisher, Assistant Secretary, Department of Agriculture and Water Resources, *Committee Hansard*, Canberra, 27 June 2018, p. 9.

181 Mr Tim Fisher, Assistant Secretary, Department of Agriculture and Water Resources, *Committee Hansard*, Canberra, 27 June 2018, p. 9.

Coordinating water releases

- 2.136 The Committee received evidence on how a coordinated approach or governance changes could improve overall outcomes, by doing more with less environmental water.
- 2.137 As discussed below, several submissions and witnesses suggested that current governance and institutional arrangements for environmental watering coordination could be reviewed or changed, such as by reducing duplication and creating an advisory body.
- 2.138 The Committee also received evidence on the CEWH's ability to involve other parties from the private sector, volunteer groups or individual landowners in environmental watering and environmental restoration.
- 2.139 In addition, the timing of water releases was discussed during the inquiry. The Committee heard views suggesting that environmental water could be released at the same time as water ordered for irrigation purposes. This would increase the overall flow and raise river levels – a practice known as 'piggybacking'.
- 2.140 The Victorian Government submitted that the Victorian Environmental Water Holder has a 'bottom-up approach' based on collaborative partnerships:
- This approach helps to maximise environmental outcomes by ensuring that:
- the collective effort of environmental water managers is efficient with minimal duplication.
 - the various 'buckets' of water for the environment are delivered in a coordinated manner, and work towards objectives that are aligned rather than conflicting.
 - communities are actively engaged in setting priorities relevant to their local area.¹⁸²
- 2.141 Mr Denis Flett (Chairperson, Victorian Environmental Water Holder) said that 'the timing of environmental watering events is as critical as the volume of water'.¹⁸³
- 2.142 The CEWH has a number of formal partnership agreements with state governments and non-government organisations. The CEWH is also involved in external fora and committees, including the Southern Connected Basin Environmental Watering Committee. The CEWH

¹⁸² Victorian Government, *Submission 41*, appendix 3, p. 5.

¹⁸³ Mr Denis Flett, Chairperson, Victorian Environmental Water Holder, *Committee Hansard*, Albury, 30 April 2018, p. 1.

advised that 'at this time, there is no equivalent environmental water coordination forum for the northern Basin'.¹⁸⁴

- 2.143 Ms Swirepik referred to environmental watering in the Gunbower Creek (a regulated anabranch of the Murray River used for irrigation), where water had been routed into the creek on its journey downstream. She said that as environmental water flowed alongside water for other uses, 'we're actually getting a very good environmental outcome for a very small parcel of water'.¹⁸⁵

Piggybacking environmental water

- 2.144 The practice of 'piggybacking' is where environmental water is released into a regulated river at times when flow levels are already elevated.¹⁸⁶ For example, environmental water could be released at times coinciding with irrigation water, so that the combined volume enlarges the overall flow and river height. When rivers run with sufficiently high flows, some water spills into wetlands that are usually isolated from the river.
- 2.145 An alternative approach is to pump water over physical barriers into wetlands (discussed above).
- 2.146 The Nature Conservation Council NSW submitted:
- The use of piggy-backing onto natural tributary inflows below storages and onto return flows into regulated river systems will enhance the benefits of environmental water.¹⁸⁷
- 2.147 Professor Richard Kingsford said that piggybacking water raised rivers to higher levels and, in this way, the environmental water will flow over physical barriers and into wetlands. He added that there are challenges, such as limited channel capacity during irrigation season and which water takes priority.¹⁸⁸
- 2.148 Ms Perin Davey (Executive Officer, Southern Riverina Irrigators) said that trials had been conducted involving return flows of environmental water. She said the environmental water enters an area such as the Barmah-Millewa Forest and, allowing for some loss, an assessment is made of the

184 Department of the Environment and Energy, *Supplementary Submission 38.1*, p. 6 (CEWH response to Question 6).

185 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 2; see also Victorian Government, *Submission 41*, appendix 8 para. 2.2; Department of the Environment and Energy, *Submission 38*, p. 24.

186 Department of the Environment and Energy, *Submission 38*, p. 30.

187 Nature Conservation Council NSW, *Submission 24*, p. 4.

188 Professor Richard Kingsford, *Committee Hansard*, Sydney, 22 June 2018, p. 7.

active water returning to the river. This returning water ‘stays environmental’;¹⁸⁹ however, Ms Davey said:

Our concern is that we don’t know what those assessments are. We are not against that process, but we need to have some sort of guarantee or certainty, as irrigators, that that practice is not negatively impacting on what is our property right, which was formed under the National Water Initiative.¹⁹⁰

2.149 The National Farmers’ Federation submission noted that piggybacking water can have impacts (such as lower water quality) and gave qualified support for coinciding water releases:

...where there is scope for environmental water to be released ‘on top of’ or ‘alongside’ industrial water and leverage the environmental outcome at no cost to industry then it should be contemplated and implemented where sensible.¹⁹¹

2.150 As noted earlier in this chapter, the Department of the Environment and Energy’s view is that piggybacking allows for environmental water to be used more efficiently, ‘because a greater outcome can be achieved with the same volume of water’.¹⁹²

Governance and CEWH independence

2.151 Professor Richard Kingsford, among others,¹⁹³ made a general observation about how environmental water is governed:

One of the big challenges is that we have so many different plans out there for a piece of river – and they don’t necessarily talk to each other very well and people are necessarily working for an organisation even if it’s the same government – and there’s tension.¹⁹⁴

2.152 Cotton Australia’s submission stated that there is duplication between the MDBA and CEWH in relation to environmental watering priorities.¹⁹⁵ The

189 Ms Perin Davey, Executive Officer, Southern Riverina Irrigators, *Committee Hansard*, Albury, 30 April 2018, p. 25.

190 Ms Perin Davey, Executive Officer, Southern Riverina Irrigators, *Committee Hansard*, Albury, 30 April 2018, p. 25.

191 National Farmers’ Federation, *Submission 29*, pp. 5-6; Mr Les Gordon, Chair, Water Taskforce, National Farmers’ Federation, *Committee Hansard*, Canberra, 23 May 2018, p. 1.

192 Department of the Environment and Energy, *Submission 38*, p. 30.

193 For example: Sarah Moles, *Submission 6*, p. 1; Ricegrowers’ Association of Australia, *Submission 19*, p. 4; Southern Fisherman’s Association, *Submission 37*, p. 5.

194 Professor Richard Kingsford, private capacity, *Committee Hansard*, Sydney, 22 June 2018, p. 9.

195 Cotton Australia, *Submission 5*, p. 3; see also Queensland Farmers’ Federation, *Submission 13*, p. 4.

National Irrigators' Council recommended that the CEWH should control environmental water planning, delivery, monitoring, metering and evaluation.¹⁹⁶ The submission observed:

There is opportunity to examine current governance arrangements, which cause confusion around the roles and responsibilities of the government agencies involved at a state and federal level (not to mention the cost to taxpayers). This is demonstrated in the context of the annual environmental watering priorities where the CEWH, MDBA and states all appear to have their own versions.¹⁹⁷

2.153 The Murray Darling Association submitted that 'more work' is needed to ensure unity and close collaboration between the CEWH and the MDBA. The Association added that a board comprising independent experts could be appointed.¹⁹⁸

2.154 The National Farmers' Federation also recommended establishing a formal advisory committee or group to assist the CEWH.¹⁹⁹ Mr Les Gordon (Chair, Water Taskforce, National Farmers' Federation) said that there is reliance on the person appointed to the role being effective. Mr Gordon made no criticism of the current or former CEWH, but he said there is a potential 'risk of someone not being competent going into the job'. He said that a safeguard could be to formalise a role for a consultative or guidance committee.²⁰⁰

2.155 Mr Gavin McMahon (Chairman, National Irrigators' Council) said environmental watering is a 'crowded space' with multiple entitlement holders.²⁰¹ He said an approach based on localism should be supported:

Governments and bureaucrats come and go, but generally the locals are there for the long-term and they actually want the best. There's an opportunity to embrace those organisations.²⁰²

2.156 The National Irrigators' Council submitted:

Local knowledge is a key part of the effort to achieve healthy river systems. NIC members have consistently expressed concern about

196 National Irrigators' Council, *Submission 23*, p. 13.

197 National Irrigators' Council, *Submission 23*, p. 13.

198 Murray Darling Association, *Submission 27*, pp. 3-4.

199 National Farmers' Federation, *Submission 29*, p. 5.

200 Mr Les Gordon, Chair, Water Taskforce, National Farmers' Federation, *Committee Hansard*, Canberra, 23 May 2018, p. 2.

201 Mr Gavin McMahon, Chairman, National Irrigators' Council, *Committee Hansard*, Mildura, 1 May 2018, p. 17.

202 Mr Gavin McMahon, Chairman, National Irrigators' Council, *Committee Hansard*, Mildura, 1 May 2018, p. 17.

turnover of staff dealing with environmental water planning and/or those staff being remote from the on the ground knowledge.²⁰³

- 2.157 On the other hand, Professor Kingsford added that while the CEWH is vested in one person, there is ‘a whole architecture underneath, and they work very well with the state agencies and with the Murray Darling Basin Authority’.²⁰⁴ He said that a different structure would not necessarily be helpful.²⁰⁵ Mr Mark McKenzie (CEO, NSW Irrigators’ Council) said that while there is ‘good coordination’ between state environmental water holders and the CEWH, ‘wholesale intervention’ from the Commonwealth is unnecessary.²⁰⁶
- 2.158 As discussed in Chapter 1, the CEWH has a degree of statutory independence. The Goulburn Valley Environment Group submitted that it is ‘critical that the CEWH maintains its independence and is allocated sufficient funding to carry out its responsibilities’.²⁰⁷
- 2.159 The Committee notes that the Productivity Commission recently suggested that the CEWH could benefit from increased independence:
- ...the CEWH should not be subject to directions from the Minister or departmental secretary concerning the use of the Commonwealth environmental water holdings.²⁰⁸
- 2.160 The Commission also proposed separating the CEWH from the Department of the Environment and Energy and constituting it as a statutory body.²⁰⁹
- 2.161 The CEWH and MDBA advised that there are benefits from having multiple agencies and stakeholders involved in environmental watering:
- The ability to bring a range of Basin-wide, regional and local skills and perspectives when planning for, and delivering, environmental water across jurisdictions.
 - Having shared responsibility between the CEWH, Basin States and the MDBA engenders shared ownership in Basin Plan outcomes and risks.

203 National Irrigators’ Council, *Submission 23*, p. 15.

204 Professor Richard Kingsford, private capacity, *Committee Hansard*, Sydney, 22 June 2018, p. 9.

205 Professor Richard Kingsford, private capacity, *Committee Hansard*, Sydney, 22 June 2018, p. 9.

206 Mr Mark McKenzie, CEO, NSW Irrigators’ Council, *Committee Hansard*, Sydney, 22 June 2018, p. 20.

207 Goulburn Valley Environment Group Inc, *Submission 15*, p. 1.

208 Productivity Commission, *Inquiry Report 87, National Water Reform*, December 2017, p. 160.

209 Productivity Commission, *Inquiry Report 87, National Water Reform*, December 2017, p. 161.

- Driving innovation and collaboration across agencies optimises the effectiveness and efficiency of Commonwealth and state water portfolios to deliver environmental outcomes.
- Recognition of the long history of environmental watering programs in the catchments of the Basin and relationships between government agencies, Basin communities and Traditional Owner groups. These histories can span many decades and are an invaluable source of community input and feedback on the value of water for the environment.²¹⁰

- 2.162 To illustrate how current arrangements are working, the MDBA submitted that in 2016-17, around 37 per cent of environmental watering events were coordinated and involved multiple environmental water holders. The submission stated that environmental water managers and river operators work together on 'real-time actions' to identify where water could be used at multiple environmental demands.²¹¹
- 2.163 The South Australian Government's submission described an example where a coordinated water release from combined water portfolios had generated a 'pulse' of water, supporting migrating fish between the sea and the Murray River.²¹²
- 2.164 The CEWH said she is 'open to have a discussion' about establishing a committee or advisory group.²¹³

Partnerships with third parties

- 2.165 The NSW Irrigators' Council noted that major irrigation corporations and a number of private individuals and wetlands trusts have assisted with deploying environmental water to target sites. The Council supported extending this approach and using successful examples as a template for future partnerships.²¹⁴ Murray Irrigation submitted:

The expertise and infrastructure of the consumptive water industry are part of the solution, not a contributor to the problem.²¹⁵

210 Department of the Environment and Energy, *Supplementary Submission 38.1*, p. 6 (CEWH and MDBA response to Question 5).

211 Murray-Darling Basin Authority, *Submission 34*, p. 13.

212 South Australian Government, *Submission 40*, pp. 4-5.

213 Ms Jody Swirepik, Commonwealth Environmental Water Holder, Department of the Environment and Energy, *Committee Hansard*, Canberra, 27 June 2018, p. 7.

214 NSW Irrigators' Council, *Submission 32*, p. 5; see also Southern Riverina Irrigators, *Submission 21*, p. 4; Murray Irrigation, *Submission 30*, p. 4.

215 Murray Irrigation, *Submission 30*, p. 12.

- 2.166 A submission from the National Irrigators' Council listed examples of where its members had collaborated with the CEWH and other government agencies:
1. floodplain restoration in the Renmark Irrigation District;
 2. Murray private property wetlands watering program;
 3. Lyrup Forest Reserve lagoon;
 4. Goulburn trade flows; and
 5. Burrendong dam thermal curtain.²¹⁶
- 2.167 Ms Rosalie Auricht (Business Manager, Renmark Irrigation Trust) said that floodplain rehabilitation around Renmark had used Commonwealth environmental water and received global certification for water stewardship.²¹⁷ The Nature Foundation SA Inc submitted:
- Continued delegations to local and regional groups with proven delivery capacity can extend the reach of environmental watering to a greater range of sites... These partnerships bring very significant value-adds through in-kind and cash contributions, which also lead to community engagement.²¹⁸
- 2.168 Mr Ken Hooper (private capacity) provided information to the Committee on wetland restoration at two properties. Mr Hooper submitted:
- ...the future will see more smaller-scale projects, probably mostly private/public partnerships dotted across the floodplains that will produce great biodiversity benefits and complement the restoration and management of the icon sites.²¹⁹
- 2.169 Councillor Mark Eckel (Mayor, Mildura Rural City Council) said local government could have an increased role in environmental water projects:
- Local government has the skill and institutional capacity to inform policy development and has rich and established regional networks that offer an individual interface, and an effective resource, for state and federal policy makers.²²⁰
- 2.170 The Murray Darling Association recommended the formal inclusion of local government in planning for environmental water use. The Association submitted that this would improve public confidence and

216 National Irrigators' Council, *Submission 23*, pp. 10-11.

217 Ms Rosalie Auricht, Business Manager, Renmark Irrigation Trust, *Committee Hansard*, Mildura, 1 May 2018, pp. 18-19.

218 Nature Foundation SA Inc, *Submission 22*, p. 3.

219 Mr Ken Hooper, *Submission 14*, p. 6.

220 Councillor Mark Eckel, Mayor, Mildura Rural City Council, *Committee Hansard*, Mildura, 1 May 2018, p. 2.

involve knowledge in solving any ‘unintended and adverse consequences inherent in environmental watering events’.²²¹

- 2.171 The Committee also received evidence on how traditional ecological knowledge (TEK) could be utilised. Murray Lower Darling Rivers First Nations submitted:

For TEK to be an effective input to planning and decisions around use of environmental water, there must be a framework for partnerships, protection of intellectual property and capacity building. A joint or co-management framework, formalising agreements between water holders and First Nations, is an optimum approach to secure the benefits of input from First Nations.²²²

- 2.172 Mr Grant Rigney (Acting Chair, Murray Lower Darling Rivers First Nations) said there could be scholarships created for Indigenous hydrologists. He added that Indigenous nations are ‘the experts in their own areas’ and this should be recognised.²²³

- 2.173 The Ricegrowers’ Association suggested an approach based on the concept of co-management.²²⁴ Mr Neil Bull (Environmental Projects Manager, Ricegrowers’ Association of Australia) said irrigation requirements and environmental interests could coincide:

Rice in Australia... provides habitat for a lot of key species. In Australia, we have one of the top listed threatened species living in our rice farming environment and breeding... What we find in an irrigation farm and a rice farm are opportunities to provide very good habitat with very efficient use of water to benefit species. It’s a complementary thing to what should happen in the natural habitats and wetlands.²²⁵

- 2.174 Mr Jeremy Morton (President, Ricegrowers’ Association of Australia) said that at present, however, there is ‘no way that the Commonwealth could apply Commonwealth held water to a commercial crop’.²²⁶

221 Murray Darling Association, *Submission 27*, p. 2. The Association is the peak body for local government in the Basin area.

222 Murray Lower Darling Rivers First Nations, *Submission 26*, p. 3.

223 Mr Grant Rigney, Acting Chair, Murray Lower Darling Rivers First Nations, *Committee Hansard*, Murray Bridge, 2 May 2018, p. 6.

224 Ricegrowers’ Association of Australia, *Submission 19*, p. 5.

225 Mr Neil Bull, Environmental Projects Manager, Ricegrowers’ Association of Australia, *Committee Hansard*, Canberra, 20 June 2018, pp. 6-7.

226 Mr Jeremy Morton, President, Ricegrowers’ Association of Australia, *Committee Hansard*, Canberra, 20 June 2018, p. 9.

2.175 The CEWH advised that a portion of environmental water is delivered with industry groups, non-government organisations and community groups. The CEWH is 'currently investigating options to grow and expand these arrangements'.²²⁷ Furthermore, 'our water cannot be delivered without the cooperation of a broad range of partners across the Basin'.²²⁸

Committee comment

2.176 In general, views presented during the inquiry praised the Commonwealth Environmental Water Holder's work and the way environmental water holdings are being managed.

2.177 In relation to many environmental water management practices, the Committee is satisfied that existing arrangements are conducive to the broader objective of restoring rivers and wetlands in the Murray-Darling Basin area.

2.178 The focus ought to be on outcomes and ensuring the CEWH can optimise the available environmental water. A range of measures could assist with achieving environmental outcomes, including:

- Developing legal protections for environmental water, in a way that duly recognises the existing rights of all water licence holders and meets community expectations.
- Working to resolve channel capacity and other physical constraints affecting efficient water delivery, such as at the Barmah Choke.
- Environmental water releases being coincided with other water deliveries, where possible ('piggybacking').
- Trading water, when opportunities arise.
- Using local knowledge to inform decision-making.
- Complementary projects and measures to improve rivers and wetlands, such as pest control and weed eradication.

2.179 The Committee notes the range of views on environmental water protections (to 'shepherd' water over greater distances), including

227 Department of the Environment and Energy, *Supplementary Submission 38.1*, p. 8 (CEWH response to Question 7); see also Department of the Environment and Energy, 'Agreements on the Use of Commonwealth Environmental Water', at <https://www.environment.gov.au/water/cewo/publications/agreements-use-commonwealth-environmental-water>.

228 Department of the Environment and Energy, *Submission 38*, p. 48.

discussion arising from an episode of the *Four Corners* program and a subsequent Auditor-General's report.

- 2.180 Progress is being made among governments and water licence holders to find lasting and amicable solutions. Water shepherding would improve the way environmental water is used. At the same time, the Committee agrees that this should be done in a way that does not unduly alter water licence characteristics. Nor should the 'good neighbour' policy relating to third party impacts be disregarded.
- 2.181 The Committee notes the potential for environmental water releases to inadvertently cause private property to be flooded. While the Committee did not receive evidence that any such flooding has occurred to date, the Australian Government and the CEWH may wish to consider whether existing safeguards are adequate to avoid private property being flooded in the future.
- 2.182 The CEWH should be in a position to monitor the operational use of environmental water, account for its end uses, show that it has been optimised and link its actions to outcomes. Monitoring and evaluation of outcomes is discussed further in the next chapter.
- 2.183 Some witnesses and submissions discussed current governance arrangements and whether the CEWH is sufficiently independent from the government of the day. The Committee notes that the Productivity Commission has recently examined these questions in greater detail and made its own recommendations.
- 2.184 The Committee recognises that there are a range of individuals and organisations with expertise to offer to the CEWH, particularly on local issues. A consultative body may also assist with communication, transparency and building mutual understanding about how Commonwealth environmental water is managed. Consultation with Indigenous communities may also warrant further consideration. These issues are discussed further in Chapter 4.

Recommendations

Recommendation 1

The Committee recommends that the Commonwealth Environmental Water Holder continue to:

- apply the 'good neighbour' policy;
- coordinate with state water managers and other partners to optimise environmental water releases;
- provide regular updates on environmental watering activities and outcomes;
- make funds available for non-flow complementary measures and projects, such as pest control and weed eradication;
- trade water that is excess to environmental requirements; and
- foster partnerships with the private sector and non-government organisations.

Recommendation 2

The Committee recommends that the Commonwealth Environmental Water Holder work with the Murray-Darling Basin Authority on practical methods to shepherd environmental water in a manner consistent with the rights of other water holders.

Recommendation 3

The Committee recommends that the Australian Government continue to fund and support an infrastructure program aimed at optimising water efficiency in the Murray-Darling Basin.

Recommendation 4

The Committee recommends that Basin states work to ensure that environmental water flows achieve their aims. Basin States should further ensure that reporting is comprehensive, timely and evidence-based.