5

Water purchase and infrastructure investment

5.1 Moving to a future with sustainable diversion limits (SDLs) set by a Basin Plan will require a transition process to avoid significant impacts on the productivity and wellbeing of regional communities. The Commonwealth Government has committed to 'bridge the gap' to cover any reduction in consumptive use of water required under the Basin Plan. To date, the preferred approach taken has been the transfer of water from consumptive use to the environment through non-strategic water buyback and investment in irrigation efficiency programs under the *Water for the Future* program.

5.2 As discussed in the previous Chapter, there is general acceptance that a plan is needed – but not what was set out in the Guide. While the deficiencies of the Guide need to be addressed, much more is needed than a plan to manage the Basin water resources as set out in the Water Act. The Basin Plan is just one component of a set of wider regional development strategies that need to incorporate:

- more and smarter investment in infrastructure improvements, drawing on local knowledge and coordinated with any strategic buyback;
- a strategic buyback program only. Non-strategic buyback has left stranded assets and less efficient infrastructure; and
- more and smarter investment in environmental works and measures.

5.3 Finding a positive way forward, to achieve stronger communities supported by healthy rivers, will take more than a Basin Plan that addresses the many failings of the Guide. It will require a clear vision that

includes a Basin Plan that has the support and ownership of the communities that will be most affected.

5.4 Professor Miller put to the Committee that:

> The challenge facing us is to identify and bring together the right group of people to deliver such a strategy of investment in regional futures. We need to restore confidence that we can fix this problem adopting a planned and comprehensive approach. This can only be done if we change the discourse from one of taking water from Basin communities to one of investing in the long term sustainable futures of those communities most impacted by water reform.[1]

5.5 This Chapter focuses on ways to support Basin communities and the irrigation sector as they move towards a more secure future with a Basin Plan. It looks at community concerns about the non-strategic buyback and irrigation efficiency programs showing how they may be made more effective and involve local communities.

Water for the Future

5.6 The Australian Government is currently delivering $12.9 billion of programs to progress water reforms in the Basin under the banner of *Water for the Future*. This is a suite of programs designed to balance the water needs of communities, farmers and the environment. This represents a significant investment of taxpayers' money aimed at 'providing irrigators and communities with more confidence to plan for a future with less water, to put water use on a sustainable footing, to enhance irrigation productivity, and to improve river and wetland health'.[2]

5.7 Water for the Future contains a suite of urban and rural policies and programs, including funding for water purchasing, irrigation modernisation, desalination, recycling, and stormwater capture. While it is a national initiative, the focus of Water for the Future is on the Murray-

1 Prof. Chris Miller, School of Social and Policy Studies, Faculty of Social and Behavioural Sciences, Flinders University, *Transcript of Evidence*, Murray Bridge, 18 January 2011, p. 9.

2 Department of Sustainability, Environment, Water, Population and Communities (SEWPAC), *Water for the Future - Fact sheet,* <environment.gov.au/water/publications/action/water-for-the-future.html>, accessed 16 May 2011.

Darling Basin, the most significant and productively used water resource in Australia.

5.8 SEWPAC outlined the key actions under *Water for the Future* as:

- supporting the development and implementation of a new Murray-Darling Basin Plan that responds to the needs of the system as a whole, as set out in the *Water Act 2007* (the Act);
- considerable investment in more efficient irrigation infrastructure to enable irrigators to produce more while using less water. The water savings made by these projects are shared between irrigators and the environment;
- a commitment to 'bridge the gap', which means that the Government will purchase (or recover through infrastructure investments as mentioned above) all of the water access entitlements necessary to cover the gap between current diversion limits and the new Sustainable Diversion Limits in the Basin Plan;
- steps to improve the operation of the water market, so that individuals may trade their water entitlements in a timely way, based on sound information, to help manage their business risks; and
- improvements in the quality and extent of information on water resource availability and use.[3]

5.9 The SEWPAC submission also outlined the key elements of the Commonwealth Government's Water for the Future initiative that relate to the Basin as:

- *Sustainable Rural Water Use and Infrastructure Program* - $5.8 billion to increase water use efficiency in rural Australia largely through projects that deliver lasting returns for the environment, increase productivity and secure a long term future for irrigation communities. This includes $200 million for the *Strengthening Basin Communities* program, which provides grants for local governments in the Murray-Darling Basin to assist in community-wide planning for a future with less water and supports projects that improve water security by reducing demand on potable water supplies;
- *Restoring the Balance in the Murray Darling Basin* – an initial $3.1 billion to acquire water entitlements to allocate to the Basin's rivers, wetlands and floodplains. Note that this funding was supplemented recently in the 2010 Mid Year Economic and Fiscal Outlook with the announcement by the Government to allocate a further $310 million each year from 2014-15, to ensure that it will be able to meet its commitment to 'bridge the gap';

3 SEWPAC, *Submission 532*, p. 3.

- *Driving Reform in the Basin* - funding activities by the MDBA, Australian Competition and Consumer Commission, the National Water Commission and the Department of Sustainability, Environment, Water, Population and Communities (the Department); and
- *National Water Security Plan for Cities and Towns* - funding practical projects to save water in cities and towns nationally with populations less than 50,000.[4]

Sustainable Rural Water Use and Infrastructure Program

5.10 The $5.8 billion dollar investment in improving irrigation efficiency and productivity is primarily delivered via two Commonwealth run programs and a collection of state run programs. Around $4.9 billion of this funding is already committed for the Basin.[5]

5.11 The Commonwealth run programs are:

- *Private Irrigation Infrastructure Operators Program* in New South Wales – $650 million funding for private irrigation infrastructure operators in NSW to modernise and upgrade irrigation infrastructure; and
- *Private Irrigation Infrastructure Program* for South Australia – $110 million funding for irrigation infrastructure efficiency improvements for Murray-Darling Basin operators in South Australia.

5.12 The Commonwealth funded State led State Priority Projects include:

- South Australia Integrated Pipelines – $120 million for construction of a series of potable and irrigation pipelines in areas adjacent to the South Australian Lower Lakes;
- Northern Victoria Irrigation Renewal Project Stage 2 – $953 million contribution from the Commonwealth to improve the efficiency of irrigation infrastructure in the Goulburn-Murray Irrigation District;
- Queensland Healthy HeadWaters Water Use Efficiency Project – up to $115 million funding for irrigation farmers in the Queensland Murray-Darling Basin to invest in efficient irrigation systems and technologies;
- Queensland Coal Seam Gas Water Feasibility Study – $5 million for a study is to examine the use of coal seam gas water in the Queensland Murray-Darling Basin; and

4 SEWPAC, *Submission 532*, p. 3.

5 SEWPAC, *Submission 532*, p. 8.

- NSW Priority projects (pilots) – two pilots are being rolled out under the NSW State Priority Projects: NSW Irrigated Farm Modernisation Border Rivers and Gwydir Pilot; and NSW Metering Scheme Pilot.

'Restoring the balance'

5.13 The Commonwealth Government is in the process of purchasing water entitlements for the environment. The non-strategic purchase of water entitlements have been from irrigators who choose to sell their water to the Government - referred to as 'willing sellers'. The Committee continuously heard that some sellers were not 'willing' but 'stressed' with payments going to relieve debt not to expand production. Non-strategic buyback also rendered some irrigation districts less efficient.

5.14 The purchased entitlements are transferred to the CEWH for use in improving the health of the Basin's rivers, wetlands and floodplains. The non-strategic purchase of entitlements from irrigators, along with investments in irrigation efficiency has bridged some of the gap between current diversions and the proposed SDLs.

5.15 The non-strategic and some strategic purchases of entitlements has been through a series of tender processes and individual large purchases such as the Toorale holdings in cooperation with the NSW Government.

5.16 As of 31 March 2011, the Government had purchased 966.6 GL of entitlements in the Basin which will provide a long run average water yield of 678.5 GL of water that can be used for the environment.[6]

Improving the buyback

5.17 While the main body of concerns raised with the Committee related to the Guide and the proposed SDLs, significant disquiet was also expressed about the Commonwealth non-strategic water purchase (buyback) program. In particular, its apparent ad hoc nature and its impact on the community.

6 SEWPAC, *Progress of water recovery under the Restoring the Balance in the Murray-Darling Basin program,* <environment.gov.au/water/publications/action/water-for-the-future.html>, accessed 16 May 2011.

5.18 As put by Mr Howard Clapham of Mainland Finance:

> ...there must be a review and strategic analysis of the current water buy back scheme. It is well intentioned has been in place under both sides of politics but is poorly targeted, not fully transparent and would fail every commercial accountability standard applicable.[7]

5.19 Objections were raised about the use of the term 'willing sellers' when, for many, selling their water entitlement to the Government is an option of last resort following many years of the worst drought on record and mounting debts. As Mr Rel Heckendorf of Murrumbidgee Private Irrigators put it:

> The term 'willing' is probably not appropriate. For people to sell their water at the price the government is offering they would be desperate sellers, not willing sellers.[8]

5.20 It is apparent from the evidence put before the Committee that a strategic approach is required to the recovery of water. An approach that:

- helps irrigation districts adapt to future SDLs without losing productivity;
- is able to accommodate innovative and novel offers;
- is better linked to infrastructure investments;
- is better linked to environmental water requirements; and
- is more transparent and accountable.

5.21 The Committee understands that the use of the market to transfer water to the environment is a valuable tool in the transition process. The Committee heard from several who believed that buyback will be needed if sufficient water is to bridge the gap between current diversions and the SDLs:

> Despite the farm lobby generally not supporting water buyback, [the PM's election commitment to bridge the gap] was welcomed by some as it ensured irrigator's would not face cuts to their entitlements or allocations and their 'right' to use their legal entitlement of water had been protected. The water reductions proposed by the Murray Darling Basin Authority would therefore

7 Mainland Finance, *Submission 523*, p. 3.

8 Mr Rel Heckendorf, Murrumbidgee Private Irrigators Inc., *Transcript of Evidence*, Griffith, 25 January 2011, p. 8.

> only be met by willing sellers in an effort to 'bridge the gap' of the future water requirements of the environment.[9]

5.22 The buyback creates a reserve of environmental water that has the same legal status, reliability and security as entitlements held for other purposes such as irrigation. While investments in infrastructure are a preferable method of transferring water to the environment, it is unlikely to be enough in all catchments in the Basin, strategic water buyback may also be needed.[10]

5.23 Some irrigators and community members were very concerned about what strategy would be adopted for 'finding' water if too few responded to the Government's buyback tenders, and too little was invested in water saving infrastructure. This question was asked at MDBA public meetings about the Guide, but never satisfactorily answered. South Australian irrigators told the Committee that they would be happy to see every entitlement holder have a small percentage of their water 'taken' if it was an across the Basin agreement. Such options do not seem to have been tested on Basin communities for their potential.

5.24 An active water market was generally supported and acknowledged to have helped many irrigators maintain the liquidity of their businesses during the recent drought:

> The initial $3.1 billion NWP money earmarked for buybacks would assist irrigators and their communities currently suffering the effects of a massive reduction over the last 12 months in the value of permanent water entitlement. The equity of irrigators would increase if the buyback program proceeded as intended causing prices to recover. Additionally, the credit squeeze currently impacting on irrigators and caused by the drop in the value of entitlement would be mitigated to the benefit of irrigators and the communities reliant upon them.[11]

5.25 Nonetheless, there was considerable criticism of the Commonwealth buyback throughout the inquiry. The most significant and common criticism was that, while it will limit or even mitigate the impact on entitlement holders, these benefits do not flow on to the communities that support and rely upon irrigation farming. Many submissions raised concerns about the impact that the loss of productivity in irrigation farming will have on their future:

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9 United Dairy Farmers of Victoria District Council, *Submission 530*, p. 3.

10 Victorian Farmers Federation: Sunraysia Branch, *Submission 521*, p. 2.

11 Victorian Farmers Federation: Sunraysia Branch, *Submission 521*, p. 2.

> ...irrigated farms support a much wider regional economy. That means work for the farm supplier and the local shops as well as the food processing factory. It also means a vibrant community with kids at the local school, an active footy club and rate revenue for the local council. Buy-back may put cash in the hands of irrigators. But most of the capital goes straight to the banks to reduce debt. It is not spent in the community reinvesting in alternative enterprises. Buyback does nothing for the local community and regional economy who face a slump in demand for services when irrigated properties are taken out of production. These wider impacts from buy-back are borne by local businesses, the community and by the tax payer in heightened payments for social services and structural adjustment. Once those wider costs are included in the calculation then the real costs of using buyback are no cheaper than the costs of irrigation modernisation.[12]

5.26 Other criticisms of the Commonwealth buyback include:

- the lack of strategic approach, causing a 'Swiss cheese' effect;
- that sellers are not necessarily 'willing sellers' but under pressure due to the drought and financial situations;
- concerns about the potential for there being insufficient sellers to meet the commitment to bridge the gap; and
- the tender process being too slow and not transparent.

The 'Swiss cheese' effect

5.27 The lack of a strategic approach in the Commonwealth water purchase program has been blamed for a 'Swiss cheese' effect in irrigation districts where it is purchasing entitlements. The term 'Swiss cheese' refers to what happens when some entitlement holders along an irrigation channel sell their entitlements and stop irrigating. The effect of this is to create 'holes' in irrigation areas, reducing the efficiency of delivering water down that channel, stranding assets and increasing the maintenance costs and delivery fees for the entitlement holders who remain.

12 United Dairy Farmers of Victoria District Council, *Submission 530*, pp. 17-18.

5.28 The Murray Shire Council provided an example of the 'Swiss cheese' effect in their area:

> within Murray Shire, there is a scheme in Mathoura which formerly had 14 members and now has seven. This reduction in members is already having severe economic impacts on the remaining members of the scheme.
>
> The whole issue is affecting, and will continue to affect, business confidence, which will in turn affect property values.[13]

5.29 Colleambally Irrigation referred to the Swiss cheese effect as hindering planning efforts within irrigation districts:

> the Swiss cheese does not allow us as a board to do is plan. We do not know where the next dry farm is going to come from, so we cannot plan ahead to put in the infrastructure. We might put in a bridge that can handle 500 megalitres a day in one small channel and then have three farms below that sell out—and so we did not need the 500 megalitres. We cannot plan for that.[14]

5.30 Mr Peter Toome, Chair of Irrigation Australia, also noted some of the social consequences:

> A fourth generation farmer who is told that they are on the end of a spur channel that is being abandoned is obviously going to rail against the decision to close that spur channel, because you are saying, 'Here you are. All of your friends, your family, your whole lifestyle revolves around that little community district that you're in. You're being told to pick up and move to somewhere else completely out of your comfort zone.' So I think it is important that the social costs and the social issues get included into those decisions.[15]

5.31 Some irrigation providers, for example in NSW, are able to charge the person selling their water termination fees equivalent to 10 years of the annual fees that would otherwise be payable. The intent of this is, to some extent, offset the additional maintenance and delivery costs providing

13 Murray Shire Council, *Submission 141*, p. 2.

14 Mr Henry Gardiner, Chair, Colleambally Irrigation Co-operative Limited, *Transcript of Evidence*, Griffith, 25 January 2011, p. 44.

15 Mr Peter Patrick Toome, Chair, Irrigation Australia Ltd, *Transcript of Evidence*, Canberra, 25 March 2011, p. 6.

termination fees are passed on to the affected irrigators by not increasing their fees.[16]

5.32 Mr John Culleton, Chief Executive of Colleambally Irrigation Co-operative, suggested that even with the high termination fees, the loss of water coupled with the SDLs proposed in the Guide will impact on irrigators in the future:

> If a farmer sells his water, he pays a termination fee and, for a period of time, that termination fee is used to offset the loss of water from that area so that we do not have to hike our rates for the remaining farmers. Eventually that runs out. When it runs out—and we have calculated it with the SDL settings in front of us—we will have to double our water charges. That puts those who had decided to tough it out and stay out of business.[17]

5.33 The impact of the 'Swiss cheese' effect was raised as a serious concern for the Committee from very early in this inquiry. On 9 February 2011, the Committee wrote to the Minister for Regional Australia, Regional Development and Local Government and the Minister for Sustainability, Environment, Water, Population and Communities seeking that they investigate this matter with urgency, and in particular focus on a more strategic program of water buybacks.[18]

5.34 The Ministers responded on 15 March 2011 stating:

> Future purchasing rounds will be smaller and more consistent, minimising the disruption to communities and managing distortion in water markets. Minister Burke is considering further options for prioritising strategic recovery of water and minimising 'Swiss cheese' effects.[19]

5.35 In its evidence to the Committee in Bendigo, the Victorian Farmers Federation was critical of a tender system being used to purchase water, stating that:

> If you have a true, transparent national market, you do not need a tender system. What we find is happening now is that people are

16 Ms Mary Harwood, SEWPAC, *Transcript of Evidence*, Canberra, 9 February 2011, p. 6. Water Market Rules and Water Charge (Termination Fees) Rules (2009).

17 Mr John Culleton, Chief Executive, Colleambally Irrigation Co-operative Ltd, *Transcript of Evidence*, Griffith, 25 January 2011, p. 43.

18 See Appendix F.

19 Minister for Regional Australia, Regional Development and Local Government and the Minister for Sustainability, Environment, Water, Population and Communities, Correspondence received 15 March 2011, see Appendix F.

> going through the tender system but they are not seeing the results of the previous tender before the next one starts, so no-one has any idea
>
> ...
>
> The Commonwealth is the main player in the market and whenever you get a player in the market that accounts for probably 90 per cent or 95 per cent of the market, they can force the market price.[20]

5.36 This work is of paramount importance and the Committee reiterates the need for Government agencies to be aware of the need to minimise the negative impacts of implementing water buyback.

Case study 5.1 Water for Rivers

Water for Rivers (WFR) was formed in 2003 by an intergovernmental agreement between New South Wales, Victoria and the Commonwealth to save water for the Snowy River and the Murray River. It has the objective to recover water principally through water savings projects that leave behind a regional legacy of water use efficiency and increased agricultural productivity.

Established as a public company, WFR is in a unique situation whereby it can engage in projects and deal with customers and irrigation corporations without the constraints that government authorities and departments would otherwise have. Around 70 – 80 percent of water recovered by WFR has resulted from regional projects and investments.[21]

Mr Bull, Chairman of Water for Rivers, told the Committee, "if you can't measure it, you can't manage it" and that he views much of the Murray-Darling Basin system as poorly managed and having antiquated structures and measuring devices which in turn lead to poor handling and watering of environmental sites.[22]

To-date, WFR has recovered water entitlements through a range of projects including:

- investing in irrigation delivery system efficiency using channel automation, channel lining as well as stock and domestic piping to recover system losses. In some cases this also included returning river and stream flows to their more natural state;
- modifying storage systems to return them to their ephemeral natural wetland state to reduce evaporative losses;
- on farm water efficiency projects, including reconfiguration and, in some cases, resale of them as more efficient and sustainable irrigation properties;
- combining resources from other water efficiency programs to achieve more cost effective and triple bottom line outcomes in irrigation districts; and
- investigating the opportunity to achieve multiple benefits with a legacy based approach to recovery by improving the operational efficiency in river management.[23]

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20 Mr Anderson, Victorian Farmers Federation, *Transcript of Evidence,* Bendigo, 21 January 2011, p. 30, 36. See also Victorian Farmers Federation, *Submission 395.*

21 Water for Rivers, *Submission 408*, p. 9.

22 Mr Richard Bull, *Transcript of Evidence*, Canberra, 23 February 2011, p. 17.

23 Water for Rivers, *Submission 408*, p. 13.

Making the buyback program more strategic

5.37 Throughout this inquiry, the Government water purchase (buyback) program, operated by the Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) has been subject to a high degree of criticism (particularly in irrigation districts for its perceived:

- lack of a strategic approach;
- lack of understanding about the financial and personal pressures leading irrigators to sell water;
- lack of corresponding investment in the negatively impacted community; and
- lack of flexibility, innovation and capacity to respond to proactive sellers.

5.38 SEWPAC noted that the buyback program is operating in the market with the same obligations and expectations that apply to any other buyer in the market:

> The normal practice is that a water trade happens like any other water trade in the market. If a person is selling all their water entitlements and wishes to terminate delivery, they will have termination fees owing to their irrigation provider if they are in an irrigation system, whether it is in Victoria or elsewhere, and they are responsible for those charges. We operate like any other purchaser in that we pay the market price for the water and the person selling it makes their decisions about what they do with their delivery right.[24]

5.39 A firm adherence to this approach limits the potential for innovative solutions that may provide benefits more broadly than just to the seller. The Commonwealth, using public resources, and as the largest player in the market, needs to take a more responsible, community-focussed approach than what is expected of other buyers in the market.

5.40 The Committee heard a clear and consistent message from Basin communities that the buyback program needs to be strategic for two reasons: firstly, to limit the impact of purchases on irrigation districts and the irrigators that remain; and secondly to ensure that water is bought in the best location to meet environmental objectives:

24 Ms Mary Harwood, SEWPAC, *Transcript of Evidence*, Canberra, 9 February 2011, p. 4.

> [Colleambally Irrigation Cooperative Ltd] believes that there is a strong case for a more targeted approach to buyback – one which sees buyback and the modernisation of irrigation systems as parallel endeavours. Such an approach would allow the irrigation companies to work with their customers to bring about the retirement of the least viable parts of their irrigation delivery system while improving the more viable. With the right incentives, some of the farmers in the part of the system identified for shutdown might be encouraged to relocate onto a dry farm within more viable parts of the system, or to relocate to another irrigation system. CICL accepts this type of 'social engineering' will not be easy but it represents a far more rational approach than the current one and warrants serious consideration by Government.[25]

5.41 The Committee understands that examples of successful voluntary relocation of irrigators within a district already exist and have resulted in improved efficiencies, for example through the implementation of the Torrumbarry Reconfiguration and Asset Modernisation Strategy (TRAMS) in Victoria.[26]

5.42 Wakool Shire Council identified the benefits of shutting down part of an irrigation system being:

- more efficient process for the Government to acquire water (large volumes in one deal);
- reduced likelihood of stranded assets – water savings through reduced delivery system losses; and
- less irrigation infrastructure to be maintained or improved.[27]

5.43 To date, this proposal has not been adopted by SEWPAC.

5.44 An example given by Jeremy Morton in Swan Hill, outlined in case study 5.2, suggests that the current strategic buyback arrangements make it difficult for the Department to respond quickly enough to accommodate proposals that are received outside the tender process.[28]

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25 Colleambally Irrigation Cooperative Ltd, *Submission 365*, p. 9.

26 Goulburn Murray Water, *Exhibit 126,* RMCG Report NVIRP TRAMS Update Final Report, 14 August 2009.

27 Wakool Shire Council, *Submission 188*, Attachment: Socio-Economic Impacts: Closure of Wakool Irrigation District (or parts thereof), RMCG 2009, p. 22.

28 Mr Jeremy Morton, *Transcript of Evidence*, Swan Hill, 30 March 2011, p. 58.

5.45 Murray Irrigation Ltd (MIL) also provided information on the Moulamein proposal, advising that they had offered to meet the termination fees for the irrigators involved. MIL provided the following illustration of how delays in the negotiations can undermine the outcome:

> The proposal was negotiated with farmers and developed from December 2009 when water prices were $1,306 per entitlement. By March 2010 DEWHA was offering around $800 per entitlement and would not pay over "market value" reducing the attractiveness of the project to farmers.[29]

Case study 5.2 Return of water offers rejected by SEWPAC

Moulamein

Mr Morton is from a farming family west of Moulamein in southern New South Wales who in Easter 2008, along with 12 other farming families (25 individual families in total) of the region, put together a proposal to sell their water to the Commonwealth. The proposal at the time would have returned 43,000 ML to the environment and seen 90 kilometres of channel servicing 67,000 hectares decommissioned. Water servicing the farms, which are at the most westerly point of the Murray Irrigation Limited (MIL) channel system, travels 250km from Lake Mulwala and an estimated 25per cent is lost in transit. That means about 57,000 ML is released from Lake Mulwala to deliver us 43,000ML. The 14,000 ML saved would have been available to the Commonwealth or MIL to share amongst its remaining irrigators.[30]

Wimmera

Mr Frankel, Chairman of the Wimmera Irrigators Association, told the Committee of a proposal to sell 28,000ML of irrigator water entitlement to the Commonwealth Government. The proposal would close the Wimmera Irrigation System in preference to modernisation or rationalisation of water systems in the area.[31] At the time of providing the evidence, the Association had a 100 percent participation rate in the sale of the system.[32]

Wakool

Mr May of the Wakool Landholders Association, told the Committee if a situation where 30 irrigators were proposing to shut down their channel system and offering 40,000 ML or 40,000 units of water entitlement.[33]

5.46 The Wakool Shire Council made a case for a strategic buyback that includes assistance for farmers exiting irrigation where it leads to the decommissioning of parts of an irrigation district:

> This [$5.8 billion provided by the Sustainable Rural Water Use and Infrastructure component of Water for the Future] is investment

29 Murray Irrigation Ltd, *Supplementary Submission 440.1*, p. 11.

30 Mr Morton, *Submission 638*; Mr Morton, *Transcript of Evidence*, Swan Hill, 30 March 2011, pp. 56-57; Murray Irrigation, *Submission 440*, p. 13.

31 Wimmera Irrigators Association, *Submission 175*, pp. 1-2.

32 Mr Frankel, Wimmera Irrigators Association, *Transcript of Evidence*, Swan Hill, p. 54.

33 Mr May, Wakool Landholders Association, *Transcript of Evidence*, Swan Hill, 30 March 2011, pp. 24-25.

> that the Australian Government will not need to make in areas that are decommissioned. It is argued therefore that the share of this investment that would have been spent as part of the $5.8 billion should be provided back to the region to enable the community to "adjust to a future with NO water".[34]

Recommendation 7

The Committee recommends that the Commonwealth Government immediately cease all non-strategic water purchase in the Murray-Darling Basin and take a strategic approach to water purchases that prioritises the lowest possible impact in communities.

5.47 The Department operates the buyback program under the Commonwealth Procurement Guidelines in accordance with the Commonwealth *Financial Management and Accountability Act 1997*. These Guidelines place certain obligations on public servants when spending public money. The main objectives of the Guidelines are to achieve: value for money; encourage competition; efficient, effective and ethical use of resources; and accountability and transparency.[35]

5.48 While the Procurement Guidelines are essential to underpin the way public money is spent, it leads the Committee to question whether a Commonwealth Department is the most effective agency to deliver a program of this type. Given the dissatisfaction voiced by the community about the program's lack of flexibility or responsiveness, it is apparent to the Committee that the agency is required to become efficient or an alternative arrangement is made.

5.49 The Committee recommends a new approach to water purchase later in this Chapter. However, until this recommendation can be implemented, it is essential that any further water purchases by SEWPAC be strategic only and they must identify the impact that purchases will have on regional communities and infrastructure. SEWPAC must also improve their efficiency and become more responsive to offers from proactive sellers.

5.50 The Committee questions that the 'value for money' requirement under the Commonwealth Procurement Guidelines has not allowed SEWPAC to

34 Wakool Shire Council, *Submission 188*, p. 23.

35 Commonwealth Procurement Guidelines 2008, pp. 15-29.

pay an adjustment component as well as the more than market value for water purchases. SEWPAC can and should be identifying the industry, down Basin and community impacts of water purchases. It should assist sellers and communities to coordinate access to the range of other government assistance programs that can offset these impacts.

Recommendation 8

The Committee recommends that the Department of Sustainability, Environment, Water, Population and Communities, in all future water purchases:

- **be more responsive to proactive sellers; and**
- **prior to any water purchase process, identify the consequences for the community.**

Using the water allocations market for the environment

5.51 The water market operates at two levels:

- permanent transfer of water entitlements within a catchment or between certain catchments - this is known as entitlement or permanent trading; and
- temporary transfer of the right to access the water allocated to an entitlement in a given year - this is known as allocations or temporary trading. This can occur within or between certain catchments.

5.52 Currently, the Government is only purchasing permanent water entitlement and has not participated in the allocations market. It was put to the Committee that the Government should be buying temporary water allocations to either replace or complement current purchase of permanent entitlements including using the allocations market to both buy and sell water for the environment.[36]

5.53 One of the criticisms of the strategy of buying permanent entitlements is that it will affect the availability and price of water on the allocations

36 Mainland Finance, *Submission 523*, pp. 2-3; Mr Ian Wiskin, The Fifth Estate, *Transcript of Evidence*, Canberra, 25 March 2011, p. 14; Murrumbidgee Irrigation Limited, *Submission 419*, p. 15; Mr Gilbert Silby, *Submission 380.*

market.[37] Concern was expressed that the resulting high temporary water price based on supply and demand in dry times will make it more difficult for farmers to manage low allocation years.[38]

5.54 The two main reasons as to why Commonwealth purchasing on the temporary market would be beneficial suggested that it would be a more efficient and strategic way to hold water for the environment, that is buy water when and where the environment needs it;[39] and that it would provide support for the irrigation industry and dependent communities during times of drought. Western Murray Irrigation summed up these two objectives:

> During the worst of the drought when the environment was suffering the Government would not enter the temporary water market to provide relief to the environmental assets. Water was available to purchase. The environment must be treated like any business with a value, if it is valuable enough different strategies are used to optimise outcomes in any given year. Right at the moment the environment could easily purchase hundreds of thousands of megalitres on the temporary market at $30 ML without impacting agricultural production.[40]

5.55 Four different approaches have been suggested:

- the purchase of temporary water when needed for the environment;
- the sale of environmental water that is excess or surplus to environmental needs;
- counter-cyclical trading of environmental allocations; and
- engaging options contracts with entitlement holders for water to be accessed at agreed allocations or flow rates.

5.56 These approaches all attempt to address a potential inefficiency arising from uncertainty around how much water is actually needed and the variability of environmental demand for water. In economic terms this is referred to as optimising the utility of the water, that is, if it is not needed for the environment, it should be put to productive use by irrigators.

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37 Seven Fields, *Submission 433*, p. 4.

38 Victorian Farmers Federation, *Submission 395*, p. 12.

39 David Blackett, Queensland Fruit and Vegetable Growers, *Transcript of Evidence*, St George, 15 March 2011, p. 46.

40 Western Murray Irrigation, *Submission 242*, p. 4.

5.57 Applying these approaches would provide the opportunity to optimise the amount of environmental water held once there is better knowledge about the volumes needed and delivery of water to achieve environmental objectives.[41]

Purchasing allocation water when needed

5.58 The proposal to supplement water available from entitlements held by the Commonwealth Environment Water Holder (the CEWH) by buying allocations when needed for the environment was raised as an alternative to buying the full amount in entitlements alone. This is a common approach adopted by irrigators to provide greater flexibility.

5.59 Without current knowledge of environmental water needs or a comprehensive environmental watering plan, the exact amount of water required is not known. The current approach of buying enough entitlements to cover the reduction to the SDLs places the burden of this uncertainty upon irrigators.

5.60 It has been suggested that a minimum of entitlement should be held by the CEWH with additional water required to meet the specified environmental objectives being sourced by buying annual allocations. This could reduce the total initial outlay by the Commonwealth. The CEWH could then measure year by year the environmental benefit achieved and the impact on the social and economic fabric of the Basin. Mr Richard Mills, Chairman of Mildura's Future Water Group, noted:

> Why not buy the water when it is available, with regard to temporary water? It is always available. It is just an easier alternative. You are not taking water from communities permanently. I think that they should be taking part in the market just like everyone else. The $3.1 billion that they want to spend on water buyback is a huge amount of money and they do not need to be spending that right now … the last thing they need to be doing is buying water right at the moment, when it is not necessary.[42]

5.61 There is a potential risk in this approach associated with the uncertainty of future prices on the allocation market. The allocation water market is still a relatively immature market with a lot of peaks and troughs.[43]

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41 Mainland Finance, *Submission 523*, p. 5.

42 Mr Richard Mills, Chairman, Mildura's Future Water Group, *Transcript of Evidence*, Mildura 19 January 2011, p. 8.

43 Mr Vince DeMaria, Chairman, Sunraysia Citrus Growers Inc., *Transcript of Evidence*, Mildura 19 January 2011, p. 34.

5.62 Nonetheless, this is an option that needs to be explored as part of a package of measures to address the effectiveness of the buyback program.

Selling surplus environmental water

5.63 The idea of selling environmental water was also raised throughout the inquiry as an option to support irrigators.

5.64 In his submission to the Committee, Harold Clapham of Mainland Finance suggested that the CEWH could detail the environmental flows required and projects being supported and the amount of surplus water available for temporary transfer for the forthcoming irrigation season. Wholesale water providers already provide similar information to their users. He also suggests that the temporary transfer of the CEWH's allocation may be done at the wholesale level and then administered by irrigation providers.[44]

5.65 The sale of surplus water is supported by both irrigators and environmental advocates. The Queensland Farmers Federation, the Wentworth Group and the Queensland Conservation Council all endorsed the idea with the condition that the water was truly surplus.[45]

5.66 The National Water Initiative states that environmental water held as a water access entitlement may be made available to be traded (where physically possible) on the temporary market, when not required to meet the environmental outcomes sought.[46]

5.67 Again, this option must be further explored as an option to reduce the impact on irrigators.

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44 Mainland Finance, *Submission 523*, pp. 5-6.

45 Mr Ian Johnson, Queensland Farmers Federation, *Transcript of Evidence*, St George, 15 March 2011, p.23; Mr Peter Cosier, Wentworth Group of Concerned Scientists, *Transcript of Evidence*, Canberra, 2 March 2011, p. 27; Mr Nigel Parratt, Queensland Conservation Council, *Transcript of Evidence*, Goondiwindi, 16 March 2011, pp. 25-26.

46 *Intergovernmental Agreement on a National Water Initiative*, para 35, p. 7.

Counter-cyclical trade

5.68 The term counter-cyclical trade refers to the selling of environmental water when it is not needed for the environment and buying when it is. This is based on the principle that, generally, environmental watering regimes should follow natural rainfall patterns, that is, less water should be delivered to environmental sites during dry periods to mimic natural conditions. This coincides with increased demand for irrigation use and higher water prices. Counter-cyclical trade involves the sale of environmental allocations in a drought when prices are high and purchasing allocations at a lower price in wetter years and using profits to buy more allocations or additional entitlements.[47]

5.69 Irrigators have expressed support for counter-cyclical trade of environmental water:

> What he [an irrigator] really wants is for the environment to get a large proportion of water but act like a water bank, if you like, so in the years when the environment does not need as much water he knows as an irrigator who has adjusted his business to benefit from temporary trade that he will have somewhere he can go to trade water and vice versa. So he sees a lot of benefit in the environment having a big bank of water but being able to trade.[48]

5.70 From an irrigator's perspective, this arrangement would increase water availability in drought years by temporarily trading environment water.[49] From an environmental perspective it provides the opportunity to recover costs and acquire additional water to better meet environmental objectives throughout the Basin.

5.71 While the sale of water during a drought is likely to be welcomed, there will be some concerns should the Government been seen to be profiteering at the expense of struggling farmers. The Committee has some concerns about the potential adverse impacts of the Government operating in the market and this would need to be appropriately managed and minimised.

47 Young and McColl, CSIRO Land and Water Publication, *Robust Reform: Implementing robust institutional arrangements to achieve efficient water use in Australia,* Canberra, 2003.

48 Mr Tim Stubbs, Wentworth Group of Concerned Scientists, *Transcript of Evidence*, Canberra, 2 March 2011, p. 27.

49 Barossa Infrastructure Ltd, *Submission 263*, p. 2.

5.72 One concern regarding counter-cyclical trade is the potential difficulty in determining whether environmental water is truly surplus. This may be particularly difficult if carryover provisions exist enabling the CEWH to bank its allocations for larger environmental flows in proceeding years or as insurance to protect important assets during long-term drought. These are matters that warrant further investigation.

Options contracts

5.73 It was put to the Committee that the Government needs to look for a greater diversity of water products and build a portfolio that better suits the needs of the environment and limits potential impacts on communities.

5.74 Options contracts are defined by the Productivity Commission as a contract that gives the right, but not the obligation, to purchase or sell a good at a specified price within a specified period of time.[50] Mr Ian Wiskin of the Fifth Estate consulting firm described options contracts as follows:

> ...entitlement holders could enter into an option arrangement with the government to sell their water at a predetermined price—and there are ways of working that out—and, once certain trigger points are met, the entitlement holder then delivers water to the environment. That way the entitlement holder maintains ownership of the title and becomes part of the solution.
>
> What it also does is provide a revenue stream for farmers so that they can make a judgement during a dry year about whether they plant a crop or whether they sell their water to the government. In other words, the environment then becomes part of the tradeable water right, but it is an option.[51]

5.75 Mr Matt Linnegar of Murrumbidgee Irrigation Ltd told the Committee of their attempts to negotiate options contracts with the Government:

> ... there are opportunities for a range of other water products that the Commonwealth could invest in. We developed one of those quite some time ago but unfortunately they have not gone very far in terms of our dealings with the Commonwealth, although they have helped fund the pilot of the project—that is, River Reach. That is one example. It is a forward sale of allocation against an entitlement rather than the sale of the entitlement itself, so it is like

50 Productivity Commission 2006, Rural Water Use and the Environment: The Role of Market Mechanisms, Research Report, Melbourne, August 2006, p. xix.

51 Mr Ian Wiskin, The Fifth Estate, *Transcript of Evidence*, Canberra, 25 March 2011, p. 14.

> leasing a house rather than selling it. There are a range of other products that are available if the government could turn their mind to the sorts of products that would allow for stabilisation of these communities and not the great loss we talked about with the removal of entitlement. A couple of years ago, within the project, we conservatively suggested across the basin that there could be a demand for up to 250,000 megalitres of such alternative products if the government were interested in purchasing them.[52]

5.76 Again, this points to the difficulty that the current water purchase program has dealing with flexible solutions.

5.77 ABARES modelling of the potential cost of recovering water through options contracts demonstrated that, in the presence of countercyclical demands, there could be significant cost savings relative to the purchasing of entitlements.[53]

5.78 There is some concern about the relative reliability and relative value for money of water obtained through options contracts, particularly given the unknown potential future impacts of climate change. However, such opportunities should be further explored in the interests of the CEWH developing a flexible and versatile portfolio and the benefits of an innovative water market.

Improving government investment

Investing in irrigation efficiencies

5.79 Stakeholders expressed a clear preference for water to be recovered through investments in efficiency improvements:

> There can be a win-win solution here for everyone. On-farm infrastructure upgrades mean more water for the environment and better irrigation practices. We can grow the same amount of produce with less water. The government buyback of water is only giving a temporary reprieve to the farmer. However, if we

52 Mr Matt Linnegar, General Manager, Corporate and Customer Operations, Murrumbidgee Irrigation Ltd, *Transcript of Evidence*, Griffith, 25 January 2011, p. 22.

53 A. Heaney and A. Hafi, *Using water options to meet environmental demands*, ABARE Australian Agricultural and Resource Economics Society Conference, 2005.

> exchange water for implementing irrigation efficiencies the effects will be ongoing to the farmer, the community and the nation.[54]

Case study 5.3 Initiatives from irrigation providers

Total Channel Control system

Rubicon presented its Total Channel Control system as an alternative to pipelines for the delivery and distribution of water. Total Channel Control, automates the operation of channel delivery systems, enabling more efficient operation of the delivery network and resulting in less water wastage and improved service to irrigators, which facilitates further efficiencies on-farm.

It is an end-to-end solution that integrates a number of components to increase the efficiency of channel supply systems, including:

- water control gates that manage the flow of water in open channel networks with integrated meters and instrumentation to measure water level and flow;
- communications technology to remotely monitor and control gates and meters;
- management software designed to improve the utilisation of irrigation supply infrastructure; and
- unique modelling and control of channel dynamics.

Rubicon claims that the potential savings are in the order of 40 percent to 50 percent of the water currently diverted for irrigation. That is, through the efficient supply and application of water the same level of agricultural output can be achieved using 40 percent to 50 percent less water than is currently diverted from river systems.[55]

RiverReach

RiverReach is a product developed by Murrumbidgee Irrigation with funding from the Water Smart Australia project. *RiverReach* products are contracts that enable entitlement owners to sell or term-lease water based on agreed conditions. In other words, forward sale products that allow irrigators (or other entitlement holders) to retain their licensed entitlement but forward sell their annual allocation against that entitlement for an agreed period. Murrumbidgee Irrigation estimate that this type of product could deliver as much as 250,000 ML across the southern connected system of the Basin.[56]

Murray Irrigation subsystem retirement package

Based on the results of a Marsden Jacob Associates report (to analyse the benefits and costs of investments in water saving technologies and strategies on farms within the area), Murray Irrigation prepared a submission in conjunction with irrigation entitlement holders to the then Department of Environment, Water Heritage and the Arts (DEWHA) in 2009 for a sub-system retirement package designed to ease the burden of maintenance on low demand channels and reduce system footprint leading to reduced water losses through seepage and evaporation. It was felt that a bulk purchase of this nature, approximately 25 GL from one irrigation sub-system alone, plus the added savings in conveyance water through the retirement of infrastructure, would provide a good option for the Commonwealth.[57]

Similarly, Murray Irrigation prepared an application to participate in the Private Irrigation Infrastructure Operators Program (PIIOP). The submission looked to combine purchasing with strategic channel retirement and deliver on other opportunities. The application envisaged the return of 167 GL at an average price of $3,400 per ML.[58]

54 Mr John Padman, Murray Irrigators Support Group, *Transcript of Evidence*, Shepparton, 21 January 2011, p. 9.

55 Rubicon, *Submission 418*, pp. 4-5.

56 Murrumbidgee Irrigation, *Submission 419*, p. 14.

57 Murray Irrigation, *Submission 440*, p. 16.

58 Murray Irrigation, *Submission 440*, p. 16.

On-Farm Irrigation Efficiency program and subsystem retirement

Murray Irrigation see a large opportunity for on-farm efficiency through the conversion to high flow irrigation. It is estimated that up to 40-50 GL in water savings can be achieved in a typical year via this method. High flow irrigation is occurring through the On-Farm Irrigation Efficiency program under which Murray Irrigation is a delivery partner with the Commonwealth Government. Murray Irrigation has submitted 141 projects for this programme and is currently in the process of delivering contracts to the landholders. Through these projects it is estimated that 30 GL will be delivered to the Commonwealth Environmental Water Holder.

5.80 Whereas the buyback program is seen to be removing productive water from regions, government investment in infrastructure provides 50 per cent of the water savings to the environment without reducing agricultural productivity.[59]

5.81 Current funding opportunities that are available through the Australian Government's $5.8 billion Sustainable Rural Water Use and Infrastructure Efficiency Program (SRWUIP) component of Water for the Future include:

- Private Irrigation Infrastructure Program (SA)
- Healthy HeadWaters in the Murray-Darling Basin (QLD)
- Private Irrigation Infrastructure Operators Program (NSW)
- Northern Victoria Irrigation Renewal Project (VIC)
- Irrigation Modernisation Planning Assistance program (Catchments in the Southern connected Murray system and the Lachlan)
- On-Farm Irrigation Efficiency Program (Basin-wide).

5.82 The Committee heard that, in many areas of the Basin, irrigators have already achieved high levels efficiency thereby limiting their opportunity to access funding through these programs:

> The South Australian Murray Irrigator is being more severely impacted upon by the whole water reform process particularly as there are fewer margins for error in a finely tuned water management system. The Water for the Future funds are not accessible to SA Murray irrigators due to their historic management and yet we are expected to find further water savings.[60]

5.83 There was also concern about the accessibility of government programs:

> Most of them [irrigators] are very keen to upgrade their irrigation systems to more efficient systems. If we can make access to those programs a lot easier, I think we will find that we will have a lot

59 Victorian Farmers Federation, *Submission 395,* p. 26.

60 South Australian Murray Irrigators, *Submission 421*, p. 1.

> more turnover. When you are looking at efficiencies in water use, particularly in horticulture, most of the horticulturalists are quite efficient. Many areas have already upgraded. We do support infrastructure upgrades, whether on farm or off farm, over and above water buyback. So if we can make those programs more accessible we will find that we will have a lot more uptake of those programs and grants.[61]

5.84 Many also expressed frustration at the red tape and delays relating to the government programs:

> Having participating in commonwealth programs from a number of different perspectives, it seems they all follow similar themes which achieves poor outcomes. In general they are micro managed and bind participates up in red tape. They do not keep to their time lines which creates uncertainty. An example of this is the current water efficiency program of which DEWHA indicated a July/Aug (sic) sign off yet the contracts only turned up in mid December. This type of incompetence places uncertainty on our business in organising suppliers and contractors and we will now need to delay some of our project by twelve months.[62]

5.85 Similar evidence was received from the Ricegrowers' Association (RGA):

> It is perhaps understandable that the bureaucracy is cautious when delivering this program after the problems experienced with the insulation and school upgrade programs; however the approach currently being adopted is too cumbersome and too slow. RGA has found the program to be beset by unnecessary delays and red tape that are testing the goodwill of organisations such as ours trying to engage constructively in dealing with water management issues in the Basin.
>
> Delivering these programs in a timely and efficient way is absolutely critical to achieving a balanced approach to water use in the basin; that is, meeting the dual objective of returning additional water to the environment and maintaining the productive capacity of the Basin.[63]

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61 Ms Judith Damiani, Chief Executive Officer, Citrus Australia Ltd, *Transcript of Evidence*, Mildura, 19 January 2011, p. 22.

62 Ms Jennifer Wheeler and Mr Malcolm Holm, *Submission 495*, p. 2.

63 Ricegrowers' Association, *Submission 390*, p. 7.

5.86 Mr Stewart Ellis, Chair of the National Irrigators Council raised the need for investments in irrigation efficiencies to be better integrated with the buyback program:

> There is a real need for that whole program to be very integrated to make it work, otherwise we are going to have the rug pulled. We can spend on some efficiencies over here, only to find someone there then turns around and sells water to the government, and it is another stranded asset. Those programs really do need to be talking to one another.[64]

5.87 While many wish to see infrastructure initiatives replace the buyback program, it was also put to the Committee by the Sunrasyia Branch of the VFF that the likelihood that SDLs can be wholly or substantially achieved by infrastructure upgrades are unconvincing and unrealistic.[65] SEWPAC noted that only an approximate 600 GL (long-term yield) of water savings is to be returned to the environment based on current and expected projects. While this is significant, it is not seen as sufficient to meet the predicted environmental needs.[66]

5.88 However, the Committee is persuaded that with a more efficient infrastructure delivery program, there is significant opportunity for environmental savings to be met without buyback.

Recommendation 9

The Committee recommends that the Commonwealth Government focus greater investment in on- and off- farm water saving projects.

Case study 5.4 Successful joint partnerships

Water Use Efficiency Project

In Gunnedah the Chair of the Namoi Councils Water Working Group informed the Committee of the Water Use Efficiency (WUE) Project as an example of a successful joint project between governments (state and Commonwealth); Catchment Management Authorities; and irrigators.

The total funding for the WUE Program was $4.99 million, $990,000 in government monies and $4 million from 35 ground water irrigators. The anticipated water savings or efficiency gain for use on-farm to improve productivity and maintain viability was 6,830 megalitres. Funds were expended on the planning and installation of improved irrigation technology and monitoring of equipment performance plus a small educational/training component.

64 Mr Stewart Ellis, Chair, National Irrigators Council, *Transcript of Evidence*, Canberra, 25 March 2011, p. 54.

65 Victorian Farmers Federation: Sunraysia Branch, *Submission 521*, p. 2.

66 Ms Mary Harwood, SEWPAC, *Transcript of Evidence,* Canberra, 9 February 2011, p. 5.

The Program funded a wide variety of irrigation technology including:

- centre pivot and lateral move irrigators;
- sub-surface drip irrigation;
- flexi-flume to replace open head ditches;
- piping supply channels;
- installation of new bores;
- multiple cells in storages;
- laser levelling;
- replacement of gates and pipes; and
- purchase of larger diameter siphons.

Monitoring included:

- installation of capacitance probes;
- sapflow meters;
- EMI surveys and soil testing; and
- Watertrack and Irrimate monitoring.

Mr Brown acknowledged that this particular project related to improved water use efficiency on-farm with no return of the efficiency gains to the environment, he believes that the opportunity exists with government funded programs for "win win" outcomes that can result in individual irrigation productivity increases that also result in positive socio-economic outcomes.[67]

The Fifth Estate

Mr Wiskin, a Principal within the Fifth Estate, told the Committee that he believes that there is sufficient doubt around the amount of additional surface water required for the environment and the way in which this is assessed that presents an opportunity to adopt an “adaptive management” approach – which utilises a wide range of tools necessary to maintain a water management system that deals with the highs and lows of water flows within the Basin.

Mr Wiskin cited a project in 2003 where Pratt Water, with the assistance of the Fifth Estate, embarked on a programme of applying private sector business principles to the Murrumbidgee catchment based on an inventory approach to water management. The project team commissioned 40 individual projects and consulted widely with government and the community and involved 150 people from 60 organisations. The key findings were:

- 1334 GL of water per year in the Murrumbidgee Valley was unaccounted water flows, water losses and water identified for potential savings;
- 945 GL of water identified for savings through investments, reforms and matching crops to soils;
- $845 million worth of new investments identified to save water in the Murrumbidgee Valley;
- a minimum of an additional $293 million per year of farm gate production income;
- $421 million of new capital investment opportunities can be realised within the Murrumbidgee Valley; and
- identified water saving investments and new water efficient production could provide 4,500 employment opportunities and boost regional income by up to $245million.

Whilst the project specifically focussed on the Murrumbidgee River catchment, an Australia-wide model was also developed.[68]

67 See: Namoi Councils, *Exhibit 5*, pp. 1-2; and Mr Brown, Namoi Councils, *Transcript of Evidence*, Gunnedah, 14 February 2011, pp. 1-4.

68 The Fifth Estate, *Submission 487*, pp. 1, 9.

Better flexibility in investment

5.89 It has also been suggested that a more flexible approach than that taken under the Commonwealth infrastructure program would return more water for the environment for less money. Mr Ian Wiskin of Fifth Estate referred to the Water for Rivers model, outlined in case study 5.1, to suggest that considerable savings may be achieved through a private sector based approach and at a much lower cost than the current arrangements:

> With the Water for Rivers approach of looking at major gains in managing the system flow or the river flow and working with organisations such as State Water, I think there will be real gains and savings out of that, far more gains and savings than there will be out of on-farm stuff in the short time frame that we are talking about. It is the Water for Rivers approach that I would like to see as an implementation authority.
>
> The great thing about it is that you get away from this feudal lordship of a Murray-Darling authority and you involve the states, and the states still manage the system, they still own the storages. The Water for Rivers concept actually had a legal basis. It was called an implementation deed. So the shareholders in Water for Rivers, being the state governments and the Commonwealth, had clearly-defined legal obligations to meet. It worked extremely well. It was a low-cost, low-overhead operation, very little bureaucracy, and it achieved some great outcomes in a short period of time.[69]

5.90 The Committee was impressed with the successful and innovative approach applied by the Water for Rivers initiative. Mr Richard Bull, Chairman of Water for Rivers, summed up the success of this initiative in demonstrating the capacity to achieve significant savings through closer collaboration with both industry and communities:

> I think we have demonstrated through Water for Rivers that there is an infrastructure alternative to buying back water. As I said, I believe there is enough water in the system for everyone if we manage it properly—and that includes irrigators, towns and communities. I think there could be and should be enough water found out of infrastructure savings. Obviously they are going to take a little bit longer than buyback, but they are substantial and they benefit everyone. There is a win-win situation for both farmers and the environment. The river authorities, like State

69 Mr Ian Wiskin, Fifth Estate, *Transcript of Evidence*, Canberra, p. 18.

> Water in New South Wales, will get a state-of-the-art system that will benefit them for many years. The way you look at it, it is certainly the best alternative to achieving these water savings and I would not have thought it would damage any jobs in the regions along the river and in the communities.[70]

5.91 There is widespread support for the Water for Rivers approach.[71] The New South Wales Farmers Association identified the factors that underpin Water for Rivers success:

> ...one of the primary advantages of WFR as a delivery mechanism is its company structure and governance model. WFR is owned by three equal shareholders being the NSW, Victorian and Federal Governments but operates like a private company, rather than a government bureaucracy. This helps to address what has been one of the primary obstructions to delivery of infrastructure funding, which is achieving timely agreement on project approval.
>
> As a public company limited by guarantee, WFR, can operate more rapidly and strategically than a government agency.
>
> WFR is effectively a facilitator between individual irrigators and communities and Government funding bodies. The project ideas are coming from local water users and service providers with WFR providing a facilitation and governance structure.
>
> The WFR model is adaptive enough to work across any project that has the potential to deliver positive outcomes within the system.[72]

5.92 Mr Bull pointed to the amount of red tape being an obstacle to success of the Government's Water for the Future program:

> Process is pretty much the way they operate. It is a matter of filling out forms, making applications et cetera. It is an exhaustive, drawn-out process which in the end drives a lot of people to us. They say, 'We have had enough of this. Can we do a deal with you?' and the answer is usually yes if it is a good deal for both of us. It is very hard to go beyond that, but I do know that there is a frustration out there when government delivers programs—and I

70 Mr Richard Bull , Chairman, Water for Rivers, *Transcript of Evidence*, Canberra, 23 February 2011, p. 21.

71 Mr Richard Widows, Senior Policy Advisor, New South Wales Farmers Association, *Transcript of Evidence*, Dubbo, 16 February 2011, p. 39; Mr Charles Armstrong, President, New South Wales Farmers Association, *Transcript of Evidence*, Dubbo, 16 February 2011, p. 37.

72 New South Wales Farmers Association, *Submission 485,* p. 33.

> have heard it from the New South Wales government officials too, when they have had funds available under some of these programs—the amount of red tape that is rolled around with these particular programs almost drives them to distraction. Then again, that is the way that government operates. Government has to be transparent and has to be accountable. It is not that we are not accountable and not transparent, but because we are a public company, and almost a private sector organisation, we can do things and get on with the job. We do not have to have lots of forms filled out and a lot of processes ticked off to get to any particular conclusion.[73]

5.93 The Water for Rivers initiative is a flexible, versatile, responsive and efficient model that can work within local context and exploit innovative ideas and local knowledge. It has garnered significant support and respect within the communities it has worked through the effective respectful involvement of those communities in finding solutions. It has also proven to be a model that can successfully marry water purchase (buyback) with infrastructure works and measures to find real and substantial water savings.[74]

Investing in environmental works and measures

5.94 The Committee heard that environmental water could be used more effectively through the implementation of works and measures to reduce the amount of water required to achieve the same objectives.[75] Thus:

> Increasing water scarcity means that structural works are an important solution for providing water to high-value floodplains and wetlands, as these significantly reduce the water required to deliver the environmental outcomes. This has been demonstrated through The Living Murray Initiative, where similar ecological outcomes can be provided using a significantly smaller volume of water and hence less cost and impact on regional communities.[76]

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73 Mr Bull, *Transcript of Evidence*, Canberra, 23 February 2011, p. 24.

74 Water for Rivers, *Submission 408.*

75 High Security Irrigators – Murrumbidgee, *Submission 309*, p. 1; Murrumbidgee Irrigation Ltd, *Submission 419*, p. 3; Ricegrowers' Association of Australia, *Submission 390*, p. 8; Queensland Government, *Submission 624*, p. 1; National Irrigators Council, *Submission 189*, p. 3; Mr Tim Napier, Executive Officer, Border Rivers Food and Fibre Inc., *Transcript of Evidence*, Goondiwindi, 16 March 2011, p. 5.

76 Australian Conservation Foundation, *Exhibit 117*, 'Priority works to increase the effectiveness and efficiency of environmental water delivery in northern Victoria - Information for the

5.95 The Committee was provided with information on potential efficiencies for environmental water delivery from either engineering solutions or smarter use of environmental water. For example:

> The Barmah and Millewa forests are examples of where small flood events have been managed to achieve ecological outcomes equivalent to floods much greater in volume. This is achieved with a network of river bank regulators into creeks and cuttings that put water into various parts of the forest and is then spread using low banks (often roads), this achieves both height and duration of flooding objectives.[77]

5.96 The Victorian Department of Sustainability and the Environment provided the following information to the MDBA in July 2010:

> Works at Lindsay Island will enable flooding of 30 per cent of the floodplain (about 5,000 ha), and reduce the amount of environmental water required for each event from 1,200,000 ML to 90,000 ML. To purchase allocation on the temporary market and provide this difference – just once – would cost around $200 million. To purchase high-reliability water share and provide it more permanently would cost over $2 billion.[78]

5.97 With a frequency of watering every four years at Lindsay Island, the Victorian Farmer's Federation estimated that the annualised savings from the project is 277.5 GL.[79]

5.98 While investment by governments in environmental works and measures through the Living Murray Initiative have been successful, the Commonwealth Government, other than investigating the reconfiguration of the Menindee Lakes System, has not been pursuing environmental works and measures as part of Water for the Future, presumably because they do not result in water that can be transferred to the CEWH as entitlements.

Murray-Darling Basin Authority, July 2010' (unpublished), *Victorian Department of Sustainability and Environment*, 31 January 2010, p. 3.

77 Gordon and Phyllis Ball, *Submission 354*, p. 2. See also Barry Dexter and Donald McLeod, *Submission 153.*

78 Victorian Department of Sustainability and Environment unpublished report: *Priority works to increase the effectiveness and efficiency of environmental water delivery in Northern Victoria, July 2010*, cited in Southern Riverina Irrigators, *Submission 452*, p. 14. See also Australian Dairy Industry Council, *Submission 196*, p. 10; Mr Mills, *Transcript of Evidence*, Mildura, 19 January 2011, p. 6.

79 Victorian Farmers' Federation, *Submission 395*, p. 25. See also: National Farmer's Federation, *Submission 490.1*, p. 3; and Mr Anderson, Victorian Farmers' Federation, *Transcript of Evidence*, Bendigo, 21 January 2011, p. 32.

Case study 5.5 Infrastructure works for environmental water

Griffith – Barren Box Storage and Wetland

Murray Irrigation (MI) provided the example of the Barren Box as water and wetland storage that is used for balancing operational water demands. Prior to the works undertaken by MI, Barren Box Swamp was shallow with a surface area of 3,200 hectares. MI completed works that deepened the storage and reduced its surface area which resulted in:

- achieving 20 gigalitres in water savings which could be returned to the river system for use in environmental flows;
- an improvement in the reliability of water supply to the Wah Wah Irrigation District; and
- restoring a more natural flooding regime, and ecological system, to the area dedicated to the rehabilitation of the Barren Box ephemeral wetland.

The Barren Box Swamp is now:

- an active storage cell covering 1,230 hectares (30% of current area) with a storage volume of 24,000 ML at full supply level;
- an intermediate storage cell covering 320 hectares with an effective storage volume of 4,000 ML (10% of current area); and
- a wetland cell covering approximately 1,650 hectares (60% of current area).[80]

Mirrool Creek Rehabilitation Project

Mirrool Creek is a natural ephemeral creek system running through the Murrumbidgee Irrigation Area that provides drainage and supply services through a channelised section of the creek. Murrumbidgee Irrigation expect that the rehabilitation project will deliver improved ecological outcomes and a more efficient supply and drainage system via the revegetation of the natural creek system and the re-construction of channelised section of the creek. It is estimated that the project will deliver savings in the order of 6,000 ML via confining supply and drainage flows within the channelised section, while allowing natural flood events to inundate the surrounding creek system and wetland.[81]

Wah Wah stock and domestic project

The Wah Wah stock and domestic project will supply stock and domestic water to landholdings located to the west of Barren Box Storage and Wetland, covering an area of approximately 300,000 hectares. The aim of the project is to replace the existing open channel system with a current generation pressurised and piped stock and domestic system (including pump stations, water storages and new supply points). It is expected this project will save 10,000ML of water annually.[82]

Lake Wyangan

The Lake Wyangan project involves the planning, design and implementation of a new water supply to the Lake Wyangan catchment that will provide for the planned transition of the southern section of the catchment to urban development. This will also allow other areas with higher agronomic potential to be irrigated in the future. Murrumbidgee Irrigation expect that the project could save 6,000 ML of water annually.[83]

5.99 The Committee considers further investment in environmental works and measures an important means to help 'bridge the gap' providing

80 Murrumbidgee Irrigation, *Submission 419*, p. 16. See also: Leslie Worland, *Submission 167*, p. 4; Warren Muirhead, *Submission 357*, p. 3.

81 Murrumbidgee Irrigation, *Submission 419*, p. 12.

82 Murrumbidgee Irrigation, *Submission 419*, p. 12.

83 Murrumbidgee Irrigation, *Submission 419*, p. 12.

environmental objectives are met for the given site. Investment in viable projects of this sort should be an integral part any transition to a future Basin Plan.

5.100 Already, significant environmental water has been purchased. In its submission, SEWPAC states that:

> To date the Australian Government has purchased sufficient entitlements to yield on average some 657 GL of water each year. This means that the government has already recovered around 20% of the 3,500GL reduction scenario in the Guide.[84]

5.101 Further, the Murray Darling Basin Authority reports that 47 GL has been recovered through state-based programs. Together with the water recovered by SEWPAC, there is a total of 704 GL that will be available to offset any reductions with the final Basin Plan.[85]

5.102 The Queensland Government informed the Committee of projects and initiatives, some of which are already in progress, that could be further developed and expanded to assist in achieving water recovery. One such initiative is the Healthy Headwaters Water Use Efficiency Programme that aims to recover and share water savings from implementing on-farm water saving technologies. The Queensland Government anticipate that the first round of the programme will recover 15,300 ML of water, half of which (7,650 ML) will be made available to the Commonwealth Environmental Water Holder.[86]

5.103 In its submission to this inquiry, the Queensland Government also lists examples of potential engineering works and measures for consideration that could generate water savings and enhance environmental outcomes for the Basin.[87]

5.104 These are the types of projects that need to be explored prior to reducing consumptive water entitlements.

84 SEWPAC, *Submission 532*, p. 7.

85 SEWPAC, *Submission 532*, p. 7.

86 Queensland Government, *Submission 624*, p. 6.

87 Queensland Government, *Submission 624, Appendix B*, p. 16.

Case study 5.6 Menindee Lakes

The Menindee Lakes are a group of shallow lakes located on the lower section of the darling River in far western New South Wales and approximately 110 kilometres east of Broken Hill. The principal lakes in the Menindee Lakes system are: Cawndilla, Menindee, Pamamaroo and Wetherell, comprising the main river channel, floodplain and a number of smaller lakes.

The current lake system covers an area of 463 km2 and has a total combined storage capacity of approximately 1750 GL, which can be surcharged to 2050 GL under certain flow conditions. Water is extracted from the lakes for town water supply, irrigated agriculture, stock and domestic users, and to provide for environmental flow purposes.[88] The Lakes also form an important part of the social and cultural life of Broken Hill.

Throughout the inquiry the Committee heard a lot of evidence with regard to the Menindee Lakes and how the lakes should be treated within the Basin Plan. Following is an example of some of the arguments that were presented to the Committee, which included:

- Removal of man-made barriers which could lead to the return of 1,400 GL/y to the river system.[89]
- Building a regulator between Menindee and Cawndilla.[90]
- Work at Cawndilla to access residual pool of 200 GL which is water unavailable for use in the Darling River below Menindee.[91]
- Deepening of the lakes to increase their capacity as a cost effective alternative to building another dam or water storage facility.[92]
- Engineering solutions to minimise evaporation losses with potential savings of up to 400 GL/y.[93]
- Possible project to restore the original flooding and drying patterns in Menindee Lakes to increase water efficiency.[94]
- Sinclair Knight Mertz in their paper; Darling River Water Saving Project Part B found that at best 248GL could be saved annually for $2.7 million.[95]
- The Committee also heard evidence that both supported the possible decommissioning of part of the Menindee Lakes, and equally opposed the decommissioning.[96]
- A call for better management, and in some cases modification or re-engineering, of the system at the Lakes.[97]

88 Maunsell Australia, Report for NSW Department of Natural Resources and the National Water Commission: Darling River Savings Project Part A, April 2007, p. 7.

89 Robert Warren, *Submission 104*, p. 9.

90 See for example: Murray Valley Water Diverters Advisory Association (NSW), *Submission 109*, p. 4; Darling River Action Group, *Submission 297*, p. 3, Stan Dineen, *Submission 351*, p. 4; Murray Darling Association, *Submission 402*, p. 7.

91 Tandou Ltd, *Submission 415*, p. 6.

92 See for example: Leslie Worland, *Submission 167*, p. 5; Shire of Brewarrina, *Submission 222*, p.3; Robert Caldwell, *Supplementary Submission 516.1*, p. 7.

93 See for example: Leeton Shire Council, *Submission 195*, p.13; Riverina and Murray Regional Organisation of Councils, *Submission 259*, p. 6; Mungindi-Menindee Advisory Council, *Submission 581*, p. 8; Pechelba Trust, *Submission 89*, p. 2.

94 Australian Wetlands and Rivers Centre, *Submission 364*, p. 4.

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

96 Mr Kahl, Namoi Water, *Transcript of Evidence*, Gunnedah, 14 February 2011, p. 23; Sunraysia Citrus Growers, *Submission 446*, p. 3; Regional Development Australia, *Submission 493*, p. 5.

97 See for example: Russell Fisher, *Supplementary Submission 150.1*, p. 2; Bill Murray, *Submission 157*, p. 1; Carrathool Shire Council, *Submission 161*, p. 4; Jim Small, *Submission 212*, p. 2; Bourke Shire Council, *Submission 247*, p. 9; Goondiwindi Regional Council, *Submission 265*, p. 4; Gwydir Valley Irrigators Association, *Submission 417*, p. 12; Wentworth Shire Council,

What this evidence reveals is that whilst there is much conjecture over what should occur with regard to the Menindee Lakes in the Basin Plan, there is a general consensus that Menindee Lakes cannot be overlooked and require significant attention for the benefit of the Basin and its communities.

5.105 Appendix E contains a table of the potential return of water in a number of Basin regions. The initiatives and projects included are examples of the sorts of ideas that were presented to the Committee throughout the inquiry. Projects varied from individual irrigator on-farm efficiency and the closing down of local channel systems to community and government cooperative projects. Whilst the precise water savings and costings were not specifically analysed, the Committee wishes to highlight the value of local input into possible water efficiencies.

5.106 These projects represent not only the willingness of communities to participate in improving the health and prosperity of the Basin, but also the opportunity for government to further engage local Basin communities to find cost effective projects that may deliver on-farm efficiency or recover water that could ultimately contribute in offsetting any future SDLs.

5.107 The viability of the projects identified in Appendix E and in the case studies throughout this report, as well as any other identified community initiatives need to be assessed, as a matter of urgency. However, in the case of the Menindee Lakes, where a number of studies have already been completed, action needs to be taken.

Recommendation 10

The Committee recommends that the Commonwealth Government:

- **identify and assess the viability of environmental works and measures as identified throughout this report and by the community; and**
- **implement any viable measures as quickly as possible.**

Submission 461, p. 24; Namoi Councils Water Working Group, *Submission 517*, pp. 17-18; Mayor Donna Stewart, Balonne Shire Council, *Transcript of Evidence*, St George, 15 March 2011, p. 5.

Monitoring, compliance and enforcement

5.108 The Committee considers it imperative that all use of water in the Basin be accurately monitored and with appropriate compliance measures in place. There are potential water savings to be found through better measuring and measurement as well as monitoring water use, both from improved management efficiency and tighter compliance with entitlements.

5.109 The Water Act places new responsibilities upon the Bureau of Meteorology to manage information on the water resources of the Basin and the establishment of a water accounting system.[98] Responsibilities also exist under state and territory legislation for monitoring to be undertaken by the respective governments, who in turn are required to provide information to the Bureau of Meteorology.

5.110 The Water Act also gives a range of enforcement powers to the MDBA, ACCC and the Commonwealth Minister in relation to compliance, including with requirements of the Basin Plan.[99] While, in general, these powers may be applicable to individuals, corporations or state and territory governments, it is likely that compliance and enforcement provisions that exist under state legislation would apply in the first instance.

5.111 The extent of metering of water diversions varies significantly across the Basin. It is generally better in areas of high irrigation development and river regulation. However, even where there has been investment in metering, the Committee heard of reliability problems and lack of enforcement by state agencies. The Mungindi-Menindee Advisory Council submitted the following concerns on metering:

> Water metering is a huge issue in the whole debate. On the Barwon-Darling we introduced time & event meters on all pumps by 1992 and then were required to install (at our own cost) ultrasonic MACE meters between 1998 and 2004. The problem is that these meters is that they have not been reliable and, in recent times, have not been properly managed & maintained by State Water and the NSW Office of Water.
>
> Due to metering issues and disputes, the NSW authorities have not been able to provide water usage results to Barwon-Darling irrigators for the 2009/10 water year and there are still question marks and disputes over the 2007/08 water year. We are now well

98 Part 7, Division 2, *Water Act 2007,* p. 148.

99 Part 8, *Water Act 2007,* p. 156.

> through the 2010/11 water year without knowing what our usage has been and how much carry-over water we have in accounts.
>
> These problems mean that we need to introduce improved metering technology so that we can properly measure and manage river diversions.[100]

5.112 It will not be possible to manage Basin water resources to the required level of efficiency without efficient and accurate monitoring of water use, including metering. It is incumbent on state and territory governments to fulfil their responsibilities in regard to compliance and enforcement.

5.113 In the interests of finding water savings and furthering water reform, the Commonwealth should be doing all it can to assist the state and territory governments to meet their responsibilities.

5.114 Clarity is required on what the respective compliance and enforcement roles and responsibilities are at the different levels of government in regard to the Basin Plan. As such, it is imperative that the Commonwealth, state and territory governments work cooperatively to develop a comprehensive compliance framework to form part of the Basin Plan implementation strategy recommended in this report.

Recommendation 11

The Committee recommends that the Commonwealth Government, in partnership with the Basin states and the Australian Capital Territory, develop a framework addressing the monitoring, compliance and enforcement of Basin water resource use.

Addressing taxation issues

5.115 The Committee is concerned that taxation issues relating to irrigation efficiency projects funded through the Water for the Future initiative are a critical factor impeding irrigator investment. In one case, the Committee was told of a $50 million investment project that could not proceed because of a potential tax liability of $14 million.[101] Mr Rel Heckendorf from Murrumbidgee Private Irrigators Inc. put it this way:

100 Mungindi-Menindee Advisory Council, *Submission 581,* p. 9.

101 Mr Brett Tucker, Managing Director, Murrumbidgee Irrigation Ltd, *Transcript of Evidence*, Griffith, 25 January 2011, p. 15.

> The on-farm infrastructure program is one that the irrigation industry has embraced, but it has one major flaw: the taxation system. I do not think too many are going to take it up simply because if they get the money they get taxed on it, so the amount of money they get for the amount of water they give back to the government gets devalued. Until you fix the taxation system, some of those things just will not happen.[102]

5.116 Given the importance of taxation issues in the implementation of programs as far-reaching and large as the Basin Plan and Water for the Future, it has been suggested to the Committee that the Australian Tax Office should be involved early so that tax issues can be dealt with rapidly and transparently.[103]

5.117 It was also suggested that the tax system could be used to provide incentives to encourage investment in efficiency improvements that provide environmental benefits or transfer of water to the CEWH.[104]

5.118 This issue is of such concern to the Committee that it raised it with the Ministers in its interim findings made on 9 February 2011 (see Appendix F). The Minister's responded that:

> On 18 February 2011, we issued a joint announcement that the Government would move to change current taxation arrangements for irrigators who take up water efficiency investment grants to allow more strategic infrastructure investment. The tax changes will be backdated to 1 April 2010.
>
> This taxation announcement in turn unlocked the announcement of Round 2 of the Private Irrigation Infrastructure Operators Program. This program will assist irrigation authorities to lead strategic infrastructure investments and manage concerns about stranded assets.[105]

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102 Mr Rel Heckendorf, Executive Member, Murrumbidgee Private Irrigators Inc., *Transcript of Evidence*, Griffith, 25 January 2011, p. 6.

103 Murrumbidgee Irrigation, *Submission 419*, p. 18.

104 Murrumbidgee Irrigation, *Submission 419*, p. 18; Mr Vince DeMaria, Chairman, Sunraysia Citrus Growers Inc., *Transcript of Evidence*, Mildura, 19 January 2011, p. 32; Mainland Finance, *Submission 523.1*, p. 2.

105 Minister for Regional Australia, Regional Development and Local Government and the Minister for Sustainability, Environment, Water, Population and Communities, Correspondence received 15 March 2011, see Appendix F.

5.119 The Committee welcomes these changes. However, the Committee is of the opinion that any further impediments to irrigation investment within the tax system should be removed and the use of tax based incentives should be explored.

Recommendation 12

The Committee recommends that the Commonwealth Government identify and rectify all impediments to irrigation investment in the taxation system.

Recommendation 13

The Committee recommends that the Commonwealth Government develop and implement options for tax based incentives for efficient irrigation investment as part of the implementation of the Basin Plan.

Investing in research and development

5.120 An essential component to supporting irrigators adaptation to a future with less water is to provide the technologies to ensure that Australian irrigators are at the cutting edge of global irrigation practice.

5.121 The National Program for Sustainable Irrigation, 'a collaboration of thirteen government, irrigation authority and primary producer bodies, and ... one of the longest-running national cross-commodity research and development collaborations',[106] has identified five essential components to a successful irrigation business:

- business planning – aligning business capacity with market opportunities;
- irrigation planning – site selection and system design;
- irrigation management – optimal production and water use efficiency;
- agronomy and soil management – productive soils and optimal plant growth;
- monitoring – continual evaluation and improvement.[107]

106 DAFF, *Submission 473,* p. 20.

107 National Program for Sustainable Irrigation (NSPI), *Irrigation essentials: research and innovation for Australian irrigators,* Narrabri: December 2009, p. 7.

5.122 Rural research and development (R&D) is critically important to assisting the agricultural sector adjust to the challenges it faces as well as driving productivity growth. The Department of Agriculture, Fisheries and Forestry (DAFF) stated that:

> ABARES has found that the decline in public investment in agricultural research is likely to have contributed to the slowdown in productivity growth that occurred from the mid 1990's. Continued investment in irrigation research, development and extension will be essential in helping irrigated agriculture to maintain and increase productivity as the basin plan is rolled out.[108]

5.123 Many stakeholders called on improving the efficiency of irrigation water use as a measure to reduce the impact on irrigators of returning water to the environment. Concerns were raised in relation to the reduction in public funding for agricultural research, noting how improvements in irrigation practice and agronomy makes sound business sense:

> We have very hard setting, non-subbing soils prone to compaction. Yield potential was always limited because of poor water holding capacity. Through a change in management regime to stubble retention, direct drilling and controlled traffic, the soils are now better able to capture and store any available moisture. The soils infiltration rates have improved from 30 mm to 70 mm. Not only has this dramatically lifted yield but has also increased the flexibility within the cropping program. We now grow high yielding crops using a system of integrated pest management, weed control, fertiliser management, rotations stubble management and inter-row sowing. In 1990 we would aim for 3.5T/ha wheat yield we now aim for 7 T/ha and have achieved 8.5 T/ha.[109]

5.124 Significant water savings have already been achieved by effective R&D. For example, consumptive water for rice production has dropped by 60 percent[110] and consumptive use for cotton now 'far exceeds the water use efficiency of all other major cotton producing countries.'[111]

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108 Department of Agriculture, Fisheries and Forestry (DAFF), *Submission 473,* p. 19.

109 Craig and Helen Reynolds, *Submission 570.*

110 Griffith City Council, *Submission 416,* p. 7.

111 CSIRO, *Submission 476,* p. 9.

5.125 Localised R&D was also presented as one avenue to create economic activity within the most severely affected communities.[112]

5.126 The Committee heard widespread calls for a renewed focus on and coordination of Basin-based R&D:

> Commodity groups have been quite strong in delivering research and promoting new technology and irrigators will tend to focus on maximising their crop and want specific research. Localised approaches by credible individuals and organisations will always have the best results.
>
> Having said that WMI still believes there is an opportunity to combine the currently fragmented irrigation efficiency research into a centre for irrigation excellence in the Murray Darling Basin.[113]

5.127 Aside from focusing on improved farming practices, it was put to the Committee that:

> There are potential water savings to be gained through improved river operations that reduce delivery losses. These improvements can be in the form of better measurement, real-time remotely sensed information or in the installation (and in some cases removal or modernisation) of infrastructure.[114]

5.128 Public and private investment in appropriate, targeted, R&D is essential and how government investment should take place is discussed below.

Recommendation 14

The Committee recommends that the Commonwealth Government focus greater investment into research and development to improve irrigation efficiency.

112 Laurence Lewin, *Submission 396*.

113 Western Murray Irrigation, *Submission 242,* p. 8.

114 Namoi Councils, *Submission 517*, p. 17.

Committee comment

5.129 More can and should be done to address strategic water purchase and infrastructure investment as part of implementing the Basin Plan. In the words of one submitter:

> Put simply, we must integrate State and Commonwealth programs that include modernisation, measurement, water purchase and structural works with the co-ordinated management of environmental entitlement. Only then will we deliver a future for the Murray-Darling Basin that provides harmony between the social, economic and environmental aspirations of the Basin community and the wider Australian populace.[115]

5.130 As discussed throughout this report, a strategy is needed that clearly sets out how Basin communities can move to a more sustainable future under the Basin Plan. Alongside this, a strategic, coordinated approach to water purchase and Government investment is necessary. Such an approach needs to be backed by dedicated resources that will be used to achieve real and tangible results on the ground.

5.131 There is also a need to deliver current government programs, such as the water purchase program in a way that is more strategic, more flexible and more open to innovative proposals in a far timelier manner than they are currently delivered.

5.132 To this end, the Committee is recommending that a national water fund be established that can be used to:

- invest in on-farm and off-farm water saving projects to provide water entitlements for the CEWH;
- invest in environmental works and measures to increase the SDLs;
- invest in research and development to improve irrigation efficiency and resilience.

115 Richard Bull, David Anthony and Gerry Lawson, *Submission 538*, p. 12.

5.133 The fund must be established in such a way that is flexible and responsive ensure that innovative solutions can be identified, assessed and progressed in a timely manner. It should provide the means to draw upon local knowledge and expertise and deliver outcomes that help communities adapt and build confidence in their future.

Recommendation 15

The Committee recommends that the Commonwealth Government establish a national water fund to:

- **invest in on- and off-farm water saving projects;**
- **invest in environmental works and measures; and**
- **invest in research and development to improve irrigation efficiency.**

5.134 Water purchase and infrastructure investment also needs to become more coordinated and innovative through:

- a strategic water purchase process;
- a more flexible use of the water market; and
- a flexible approach to identifying and managing infrastructure projects.

5.135 This can be achieved in part through components of the proposed national water fund being delivered through a government owned venture modelled on the successful, dynamic and inclusive approach demonstrated by the Water for Rivers initiative. This model offers a localised approach that harnesses the knowledge of, and consequently invests in, communities and has the capacity to be more timely, flexible and responsive than a government agency.

5.136 To this end, the Committee is recommending that a government owned corporation, based on the Water for Rivers model, be established through a cooperative arrangement with the Commonwealth and relevant state and territory governments as shareholders.

Recommendation 16

The Committee recommends that the Commonwealth Government consider establishing a national water fund manager that may:

- **take a strategic, localised approach to water purchase;**
- **in special circumstances, sell surplus environmental water as well as purchasing additional water when needed;**
- **identify and invest in irrigation and environmental infrastructure projects.**

5.137 In the establishment of the national water fund manager, consideration should be given to it:

- being established with an initial investment from the national water fund;
- be responsible for purchasing water for the Commonwealth Environmental Water Holder (CEWH), removing this responsibility from SEWPAC;
- establishing a portfolio of water entitlements from across the Basin to allowing it to sell as well as to strategically buy environmental water, given the CEWH's limited capacity under the Water Act to undertake such activity. This means that when the CEWH has excess water (for example, following wet years or when watering events are not required), this water may be returned to productive use in the temporary market;
- be given the capacity to invest in:
  - ⇒ research and development activities;
  - ⇒ irrigation efficiency projects; and
  - ⇒ environmental works and measures.

5.138 The Water for Rivers company and the NSW RiverBank company[116], both which operate in the water market as government owned corporations, offer ongoing funding models including self funding which should be explored as part of the establishment of the water fund manager.

116 NSW Government, *New South Wales RiverBank Business Plan: Part A: Program Plan 2006-2011: Buying and managing water for the environment,* 2010 Update, p. 21.

5.139 The MDBA and SEWPAC must be subjected to high levels of scrutiny to provide a level of transparency and accountability that is apparent and accessible to all stakeholders.

5.140 How this should occur is addressed in Chapter 6.