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A submission to the inquiry into certain matters relating to the proposed  
Murray-Darling Basin Plan by the House of Representatives Standing  
Committee on Regional Australia

## **Introduction**

The Murray-Darling Basin Plan (the Basin Plan), once it is in place, will be a significant step towards achieving a long-term rebalancing of water for consumptive use and the environment. The Basin Plan will set new limits on consumptive use of water (sustainable diversion limits or 'SDLs').

The Commonwealth, the four Basin States, the Australian Capital Territory and the Murray-Darling Basin Authority (MDBA) will all have a role in the implementation of the Basin Plan. For its part, the Australian Government is investing over \$9 billion in the Murray-Darling Basin through the Water for the Future program, making this the largest single agricultural adjustment program in Australia's history.

The Government has committed to 'bridge the gap' between current diversion limits and the SDLs in the Basin Plan. Water entitlements to bridge the gap will be either purchased by the Commonwealth or recovered through investment in more efficient irrigation infrastructure or environmental works and measures that can deliver more water-efficient environmental outcomes for the Basin's rivers and wetlands.

## **Preparing the Basin Plan**

The draft Basin Plan was released in November 2011 for a 20 week public consultation process that closed on 16 May 2012. The MDBA has released the Proposed Basin Plan Consultation Report - a summary of the issues raised in the submissions and the authority's responses to those issues. The authority has also released an analysis of the socio-economic implications of the sustainable diversion limits (SDLs) proposed in the revised Plan. Both of these are available on the MDBA website: [www.mdba.gov.au](http://www.mdba.gov.au).

On 28 May this year, the MDBA provided Basin Water Ministers, including the Commonwealth Water Minister, the Hon. Tony Burke MP, with a revised draft of the Basin Plan. Under the *Water Act 2007* Basin Water Ministers, through the Murray-Darling Basin Ministerial Council, have six weeks to consider the revised draft Basin Plan and prepare comments. Taking into account the Ministerial Council's comments, the MDBA will prepare a final plan for the Commonwealth Water Minister's consideration. The Water Act provides that the Commonwealth Water Minister can make suggestions on the Plan or direct the MDBA to make changes. Ultimately, the Commonwealth Water Minister must be satisfied with the Plan before tabling it in Parliament.

## **Action on recommendations of the recent inquiry**

Since the House of Representatives Standing Committee report *Of Drought and Flooding Rains: Inquiry into the impact of the Guide to the Murray-Darling Basin Plan in Regional Australia* (the Windsor Inquiry), the Government has:

- established a separate Commonwealth Environmental Water Office (CEWO) to support the Commonwealth Environmental Water Holder;
- conducted only strategic water purchases;
- consulted with stakeholders on development of a sub-system reconfiguration program
- invested in identifying and assessing the feasibility of environmental works and measures that may offset the SDL reductions;
- continued to work with the Basin States on an implementation strategy for the Basin Plan;
- established the Office of Water Science; and
- advanced work with the Basin States to improve Basin river management efficiency.

## **Terms of Reference 1 – Progress towards ‘Bridging the Gap’**

The government’s water recovery programs began in 2008. As at 31 May 2012, total contracted environmental water recovery in the Basin was 1,401 gigalitres (long term average annual yield). This recovery volume comprises 217 gigalitres secured through the government’s investment in infrastructure savings, 1,031 gigalitres secured through water buybacks, 142 gigalitres of recovery through state government programs and 11 gigalitres gifted by the Queensland government to the Commonwealth.

This level of environmental water recovery represents 51 per cent of the MDBA’s proposed 2,750 gigalitre reduction to meet the Sustainable Diversion Limits. A more detailed breakdown of environmental water recovery is provided in **Attachments A, B and C**. This information is regularly updated on the Department’s website at:

<http://www.environment.gov.au/water/basin-plan/about.html#progress>

and

<http://www.environment.gov.au/water/policy-programs/entitlement-purchasing/progress.html>

In addition, projected water savings from all remaining Sustainable Rural Water Use and Infrastructure Program (SRWUIP) investments are expected to total some 383 gigalitres, which will bring the total water recovery to 1784 gigalitres, or nearly 65 per cent of the 2,750 gigalitre reduction in surface water diversions proposed in the draft Basin Plan. With the signing of contract schedules for four State Priority Projects in New South Wales on 4 June, the contracted water recoveries under SRWUIP rose from 217 gigalitres to 284 gigalitres.

Around 966 gigalitres more remains to be recovered through water purchase to ‘bridge the gap’ of 2,750 gigalitres.

In some catchments (e.g. the Gwydir and the Lachlan), the government has already recovered enough water for the environment to reduce baseline diversions to the sustainable diversions limits in the proposed Basin Plan.

### ***Progress in infrastructure investment***

SRWUIP funds a wide range of projects which are being delivered by a variety of proponents, including state government departments, irrigation infrastructure operators, irrigation industry associations, individual irrigators and catchment management authorities

Including the recently announced NSW State Priority Projects, over \$3 billion worth of projects are now contracted with projects rolling out across the Basin States.

During 2011-12 the Government has announced infrastructure investments totalling around \$2 billion. This comprises commitments to both on and off farm irrigation infrastructure. It includes:

- \$1 billion towards an Australian Government package of projects worth \$1.2 billion for the *Northern Victoria Irrigation Renewal Project Stage 2*. The package will yield 214 gigalitres (long term average annual yield) in water savings to be transferred to the Commonwealth for environmental use over the next seven years.
- \$469 million for contracts enabling the commencement of four NSW State Priority Projects.
- \$383 million for projects in four irrigation districts in New South Wales under Round 2 of the Private Irrigation Infrastructure Operators Program. This modernisation of irrigation infrastructure will yield over 75 gigalitres (long term average annual yield terms) for environmental use.

- In-principle funding of \$150 million under Round 2 of the *On-Farm Irrigation Efficiency Program* for nine delivery partners, with water savings shared between irrigators and the environment. These contracts are in the process of being negotiated or were recently signed.
- \$11 million for Round 2 of the Private Irrigation Infrastructure Program for South Australia.
- \$9 million for the Queensland Healthy Headwaters project.

Several projects and programs funding through SRWUIP are complete or nearing completion, including:

- Lower Lakes Integrated Pipeline Project and Early works for the Lower Lakes and Coorong Recovery Project (feasibility study and Goolwa Channel, South Australia);
- Harvey Pipeline Project and Gascoyne Irrigation Pipeline (Western Australia);
- Marthaguy Irrigation Scheme upgrade in the Macquarie Valley (NSW)
- Headquarters Road Dam and Sassafras Wesley Vale Irrigation Scheme (Tasmania)
- Vic Wimmera-Mallee Pipeline (which included \$99 million of SRWUIP funding); and
- On Farm Irrigation Efficiency pilot projects in the MDB.

#### ***Impact of environmental water recovery***

A range of studies have been commissioned by the MDBA and DSEWPaC on the impacts of water recovery, undertaken by organisations such as ABARES, the Centre of Policy Studies at Monash University, Arche Consulting and University of Queensland.

Two studies commissioned by DSEWPaC are of direct relevance to the Committee's work. They are:

Arche Consulting - "*Assessing the Socio-Economic Impacts of Sustainable Diversion Limits and Water for the Future Investments: An Assessment of the Short-term Impacts at a Local Scale*". This work was commissioned to identify and quantify the likely economic and social changes that will occur to the case study community due to the SDLs and Water for the Future programs, including changes to:

- on-farm and off-farm irrigation efficiencies
- production and output
- employment
- productivity
- upstream supply businesses
- downstream processing businesses
- threshold effects for business viability
- regional development and sustainability
- water security for irrigators and communities
- the environment
- tourism, particularly eco-tourism
- securing water supplies for rural communities
- water quality
- community support for water reform

- Marsden Jacobs - “*Survey of Water Entitlement Sellers under the Restoring the Balance in the Murray-Darling Basin Program*”. In order to better understand the impact of the water purchase program, Marsden Jacob Associates Pty Ltd was commissioned to independently evaluate the impact of water sales to the Commonwealth on participating irrigators. The survey collected program monitoring and evaluation information for the RtB program. The survey instrument was designed to explore:
  - the consequences of selling water for individual irrigators and their farm businesses;
  - how sellers had used the proceeds of their Commonwealth water sales;
  - how applicants had applied to sell their water through the tender process; and
  - how irrigators thought the water purchase program administration could be improved in the future.

When the final reports of these studies are available they will be provided to the Committee.

### ***Benefits of Basin Plan***

In addition to the studies estimating the socio-economic costs of the Basin Plan, the MDBA also commissioned CSIRO to estimate the value of the socio-economic benefits from improved environmental conditions. CSIRO estimated annual benefits including:

- fewer black water events: benefits in the range of \$5–10 million;
- recreation benefits from fewer cyanobacterial blooms: benefits in the range of \$5-11 million;
- reduced incidence of acid sulphate soils: benefits worth \$9 million;
- reduced risk of bank slumpage: benefits worth \$24 million; and
- increased tourism: benefits worth \$124 million in the Murray–Lower region (Coorong) and \$38 million in the Murray–Middle region (Barmah–Millewa Forest).

The report indicates that the largest benefits are non-use values from improved ecosystem services. The value of these benefits range between \$3 billion-\$8 billion under a 2,800GL reduction scenario. However, the measurement of these benefits is imprecise and CSIRO was not able to improve the certainty of these estimates significantly.

### **Terms of Reference 2 – Environmental Works and Measures**

The term “Environmental Works and Measures” is used to describe a range of activities that either improve environmental outcomes with less water, provide greater environmental outcomes with the same amount of water, overcome delivery constraints or inefficiencies for environmental water and may also produce other water savings.

Some of these activities may count as offsets in relation to the SDL. For example, building wetland regulators that could reduce the amount of water required to achieve bird breeding objectives at a particular site may lead to an increase in the SDL for the particular catchment.

Opportunities that increase SDLs in some catchments by decreasing the amount of water required to achieve the desired environmental outcomes are identified in Section 6.06 of the draft MDB Plan and comprise works and measures, removal of system constraints and improved river management and river operational practices.

The Australian Government is actively pursuing these opportunities through a \$10 million program to assist the investigation of the feasibility of a suite of identified environmental works and measures projects. The funding comprises \$6 million for 17 State government identified proposals (a summary of these projects is at **Attachment D**) and \$4 million for State-led processes to assist the development of community-based proposals. The feasibility projects

for State identified proposals are underway and the community identified proposals are in the process of being shortlisted. All studies are scheduled to be completed between January and July 2013.

The feasibility studies will assess potential SDL offset volumes and the estimated cost associated with securing those offsets. The MDBA and Basin jurisdictions are currently working on the approach to verifiable offset volumes which may be achieved from environmental works and measures.

An updated summary of the status of the water saving projects identified by the Committee in its 2011 report is at Attachment E.

Two projects led and funded by the Australian Government are under investigation at Menindee Lakes and Toorale Station. These projects aim to improve water efficiency.

The Menindee Lakes project is aimed at reducing evaporation and improving water efficiency at Menindee Lakes; securing Broken Hill's water supply; protecting the local environment and heritage; and returning water to the environment. The Department is working with the NSW Office of Water, MDBA and others to assess potential benefits from an agreed scope of infrastructure works. This will include hydrological modelling to reflect the proposed infrastructure capacities, exploring new operational rules and assessing the potential water savings which may result in an SDL offset.

At Toorale, the Commonwealth has committed to funding structural works to modify some dams and remove redundant irrigation infrastructure. The works will improve the flow of water in the Warrego River, resulting in greater downstream flows which could provide an offset to the SDL. The Department is working with the NSW Office of Environment and Heritage to implement the project.

### ***SDL Adjustment mechanism***

When providing the revised draft Basin Plan to Basin Ministers, the MDBA has requested specific guidance from the Murray-Darling Basin Ministerial Council on a SDL adjustment mechanism. Work is in train to see if a process can be developed that would enable SDLs to be adjusted in specific circumstances, such as those achieved through environmental works and measures without the need to formally amend the Basin Plan.

### **Terms of Reference 3 – Groundwater Sustainable Diversion Limits**

The MDBA has adopted a precautionary approach to groundwater resources in the revised draft Basin Plan by reducing most groundwater SDLs from those indicated in the consultation draft. A range of work, funded by the Australian Government, is underway to add to the knowledge and understanding of groundwater resources and their connectivity.

The Australian Government will establish an Independent Expert Scientific Committee Coal Seam Gas and Large Coal Mining Developments (the Independent Expert Scientific Committee) to provide communities with greater confidence in regulatory decisions on coal seam gas and coal mining developments that are likely to have a significant impact on water resources. It will be established through an amendment to the *Environment Protection and Biodiversity Conservation Act 1999* which is currently before Parliament.

The Independent Expert Scientific Committee will improve the science base in relation to the interaction of coal seam gas and large coal mining developments and water resources by advising on priorities and overseeing research on these issues; and provide Commonwealth and state governments with expert scientific advice relating to coal seam gas and large coal mining development proposals that may have a significant impact on water resources.

The Australian Government has provided \$150 million for the work supporting the Independent Expert Scientific Committee.

The Independent Expert Scientific Committee will oversee bioregional assessments providing scientific analysis of the ecology, hydrology and geology of an area. This will assist in assessing the potential risks to water resources as a result of the direct and indirect impacts of coal seam gas or large coal mining developments

The research program and bioregional assessments will include those parts of the Murray-Darling Basin and Great Artesian Basin that have potential coal and coal seam gas reserves. These activities will complement, build upon and fill gaps in knowledge from existing work from state agencies and research organisations such as CSIRO and Geoscience Australia.

Amongst the work being advanced on groundwater resources, the Hydraulic Properties of Aquifer Geology project will increase knowledge in regards to porosity and permeability of the groundwater resources and contribute to further understanding of groundwater volumes.

The Bioregional Assessments for the northern Inland Catchments, in the Basin, (Central West, Namoi, Gwydir, Maranoa-Balonne) will review those groundwater resources in light of possible impacts from coal seam gas and coal mining developments.

**PURCHASES SECURED UNDER THE RESTORING THE BALANCE IN THE MURRAY-DARLING  
BASIN PROGRAM AS AT 31 MAY 2012**

|                                    | Catchment  | Entitlement Type                   | Secured Entitlement Purchases (ML) | Secured Entitlement Purchases - Average Annual Yield (ML) | Other Purchases - Average Annual Yield (ML) <sup>c</sup> | Average price paid per trade (\$/ML) <sup>(b)</sup> |       |
|------------------------------------|--|------------------------------------|------------------------------------|---|--|---|-------|
| Northern Basin                     | Gwydir   | General security                   | 88,520                             | 31,867  |  | 2,239   |       |
|                                    |  | Supplementary                      | 19,101                             | 3,629   |  | 1,045   |       |
|                                    | Condamine Balonne                                    | Unsupplemented                     | 22,485                             | 22,485  |  | 1,557   |       |
|                                    | Intersecting Streams(inc NSW Warrego) <sup>(a)</sup> | Unregulated                        | 8,106                              | 8,106   |  | N/A   |       |
|                                    | Namoi  | General security                   | 6,203                              | 4,776   |  | 2,050   |       |
|                                    | Macquarie  | General security                   | 57,631                             | 24,205  |  | 1,268   |       |
|                                    |  | Supplementary                      | 1,888                              | 397   |  | 161   |       |
|                                    | QLD Border Rivers                                    | Medium Priority                    | 6,832                              | 2,255   |  | 2,276   |       |
|                                    |  | Unsupplemented                     | 64                                 | 64  |  | N/A   |       |
| Barwon-Darling <sup>(a)</sup>      | Unregulated  | 22,273                             | 22,273                             |   | 836  |   |       |
|                                    |  |                                    |                                    |   |  |   |       |
| Southern Basin                     | Ovens  | High reliability                   | 50                                 | 48  |  | N/A   |       |
|                                    | Goulburn-Broken                                      | High reliability                   | 181,551                            | 172,473   | 43,188   | 2,084   |       |
|                                    |  | Low reliability                    | 10,286                             | 3,600   | 7,783  | 196   |       |
|                                    | Loddon   | High reliability                   | 2,825                              | 2,683   |  | 1,779   |       |
|                                    |  | Low reliability                    | 644                                | 174   |  | 200   |       |
|                                    | Campaspe   | High reliability                   | 6,366                              | 6,047   |  | 2,174   |       |
|                                    |  | Low reliability                    | 395                                | 194   |  | N/A   |       |
|                                    | Murrumbidgee   | High security                      | 2,145                              | 2,038   |  | 1,772   |       |
|                                    |  | General security                   | 159,102                            | 101,825   |  | 945   |       |
|                                    |  | Supplementary                      | 20,821                             | 2,915   |  | 218   |       |
|                                    | Murray   | NSW General security - above choke |                                    | 180,025   | 145,820  |   | 1,200 |
|                                    |  | NSW General security - below choke |                                    | 45,398  | 36,772   |   | 1,128 |
|                                    |  | NSW High security - below choke    |                                    | 3,356   | 3,188  |   | 2,092 |
| VIC above Choke - High reliability |  | 54,418                             | 51,697                             | 15,790  | 1,947  |   |       |
| VIC below Choke - High reliability |  | 167,227                            | 158,866                            | 28,936  | 2,076  |   |       |
| VIC above Choke - Low              |  | 5,406                              | 1,297                              | 2,354   | 193  |   |       |



|                          |                                      |                                   |                  |                  |                |       |
|--------------------------|--------------------------------------|-----------------------------------|------------------|------------------|----------------|-------|
|                          |                                      | reliability                       |                  |                  |                |       |
|                          |                                      | VIC below Choke - Low reliability | 5,762            | 1,383            | 3,947          | 199   |
|                          |                                      | SA High security                  | 92,006           | 82,805           |                | 2,112 |
|                          | Lower Darling                        | General security                  | 492              | 399              |                | N/A   |
|                          |                                      |                                   |                  |                  |                |       |
| Disconnected Tributaries | Lachlan                              | High security                     | 733              | 733              |                | N/A   |
|                          |                                      | General security                  | 81,671           | 34,302           |                | 683   |
|                          | <b>TOTAL</b>                         |                                   | <b>1,253,781</b> | <b>929,315</b>   | <b>101,998</b> |       |
|                          | <b>TOTAL LONG TERM AVERAGE YIELD</b> |                                   |                  | <b>1,031,313</b> |                |       |

Notes:

All average annual yield figures in this table are calculated using SEWPaC's estimates of the long term average annual yield for each entitlement. It was advised in the Murray-Darling Basin Ministers' Communique of 4 November 2011 that these would be used to determine how much of the 'gap' between the Baseline Diversion Limit (BDL) and the Sustainable Diversion Limits (SDL) has been 'bridged' through purchase and infrastructure projects.

(a) This data includes the water entitlements acquired from Toorale Station.

(b) This includes the water purchased from the Victorian Government related to the NVIRP project. The water purchased in this transaction is specified in average annual yield terms.

(c) Average price paid per entitlement trade – excludes the purchase from the Victorian Government related to the NVIRP project.

## WATER RECOVERED UNDER THE WATER FOR THE FUTURE INITIATIVE AS AT 31 MAY 2012

| Restoring the Balance (1)        |                                   |                                     |  |                  | Infrastructure Spend (2)<br>(SRWUIP) | Queensland Gift                                |   |  |
|----------------------------------|-----------------------------------|-------------------------------------|--|------------------|--------------------------------------|--|---|--|
| Catchment                        | Entitlement Purchases (GL)        | Long Term Average Annual Yield (GL) | Other Purchases - Long Term Ave Annual Yield (GL) <sup>4</sup> | Entitlement (GL) | Long Term Ave Annual Yield (GL)      | Gifted Water - Long Term Ave Annual Yield (GL) | Total Water for the Future Recovery - Long Term Ave Annual Yield (GL) |  |
| Northern Basin                   | Paroo                             |                                     |  |                  |                                      |  | 0.0   |  |
|                                  | Warrego                           |                                     |  |                  |                                      | 8.0  | 8.0   |  |
|                                  | Gwydir                            | 107.6                               | 35.5   |                  | 1.4                                  | 0.7  | 36.2  |  |
|                                  | Nebine                            |                                     |  |                  |                                      | 1.0  | 1.0   |  |
|                                  | Condamine-Balonne <sup>3</sup>    | 22.5                                | 22.5   |                  | 2.5                                  | 2.5  | 25.0  |  |
|                                  | Intersecting Streams(inc Warrego) | 8.1                                 | 8.1  |                  | 0.0                                  | 0.0  | 8.1   |  |
|                                  | Moonie                            |                                     |  |                  |                                      | 1.1  | 1.1   |  |
|                                  | Namoi                             | 6.2                                 | 4.8  |                  | 0.0                                  | 0.0  | 4.8   |  |
|                                  | Macquarie-Castlereagh             | 59.5                                | 24.6   |                  | 47.3                                 | 18.8   | 43.4  |  |
|                                  | QLD Border Rivers                 | 6.9                                 | 2.3  |                  | 4.9                                  | 1.6  | 4.4   |  |
|                                  | NSW Border Rivers                 | 0.0                                 | 0.0  |                  | 0.3                                  | 0.1  | 0.1   |  |
|                                  | Barwon-Darling                    | 22.3                                | 22.3   |                  | 0.0                                  | 0.0  | 22.3  |  |
| Southern Basin                   | Ovens                             | 0.1                                 | 0.0  |                  | 0.0                                  | 0.0  | 0.0   |  |
|                                  | Goulburn                          | 191.8                               | 176.1  | 51.0             | 78.4                                 | 66.6   | 293.6   |  |
|                                  | Broken                            | 0.0                                 | 0.0  |                  | 0.0                                  | 0.0  | 0.0   |  |
|                                  | Loddon                            | 3.5                                 | 2.9  |                  | 0.0                                  | 0.0  | 2.9   |  |
|                                  | Campaspe                          | 6.8                                 | 6.2  |                  | 0.1                                  | 0.1  | 6.4   |  |
|                                  | Murrumbidgee(NSW)                 | 182.1                               | 106.8  |                  | 28.6                                 | 21.7   | 128.5   |  |
|                                  | Murrumbidgee(ACT)                 |                                     |  |                  |                                      |  | 0.0   |  |
|                                  | Kiewa                             |                                     |  |                  |                                      |  | 0.0   |  |
|                                  | Eastern Mt Lofty Ranges           |                                     |  |                  |                                      |  | 0.0   |  |
|                                  | NSW Murray                        | 228.8                               | 185.8  |                  | 39.5                                 | 32.2   | 218.0   |  |
|                                  | Vic Murray                        | 232.8                               | 213.2  | 51.0             | 73.0                                 | 64.5   | 328.8   |  |
|                                  | SA Murray                         | 92.0                                | 82.8   |                  | 8.5                                  | 7.6  | 90.5  |  |
|                                  | Lower Darling                     | 0.5                                 | 0.4  |                  | 0.0                                  | 0.0  | 0.4   |  |
| Marne Saunders/SA non-prescribed |                                   |                                     |  |                  |                                      | 0.0  |   |  |

|                             |                |               |              |              |              |              |             |                |
|-----------------------------|----------------|---------------|--------------|--------------|--------------|--------------|-------------|----------------|
|                             |                |               |              |              |              |              |             |                |
| Disconnected<br>Tributaries | Lachlan        | 82.4          | 35.0         |              | 6.1          | 3.1          |             | 38.1           |
|                             | Wimmera-Mallee |               |              |              |              |              |             |                |
| <b>Total</b>                |                | <b>1253.8</b> | <b>929.3</b> | <b>102.0</b> | <b>290.5</b> | <b>219.6</b> | <b>10.6</b> | <b>1,261.5</b> |

Notes: All long term average annual yield figures in this table are calculated using SEWPaC's estimates of the long term average annual yield of each entitlement. It was advised in the Murray-Darling Basin Ministers' Communique of 4 November 2011 that these would be used to determine how much of the 'gap' between the Baseline Diversion Limits (BDL) and the Sustainable Diversion Limits (SDL) has been 'bridged' through purchase and infrastructure projects.

1. Water purchases secured by an exchanged water sale contract.

2. SRWUIP water recovery is reported at the point at which water savings have been received or agreed in signed project works contracts. Until water transfer contracts have been exchanged however, these figures may be subject to change over time if proponents seek variations to existing project works contracts.

3. The data in the Condamine Balonne row exclude a 227 ML entitlement acquired in the Condamine-Balonne catchment. The department is liaising with the Murray-Darling Basin Authority and the Queensland Department of Environment and Resource Management to develop an agreed measure of the long term average share of the diversion limit associated with this entitlement.

4. The 'Other Purchases' column includes the water agreed for purchase from the Victorian Government related to the NVIRP 2 project. The water to be purchased in this transaction is specified in average annual yield terms.

**ATTACHMENT C**

**PROGRESS OF WATER RECOVERY AGAINST PROPOSED 2750GL SDL REDUCTION AS AT 31 MAY 2012**

|                | SDL Resource Unit/Catchment                  | Local Reduction (GL) <sup>1</sup> | Share d Reduction (GL) <sup>1</sup> | Total reducti on incl shared reducti on (GL) <sup>1</sup> | Contract ed water recovery at 31 May 2012 | Volume to be recovered by 2019 | Percenta ge of Reductio n Recovered |
|----------------|--|-----------------------------------|-------------------------------------|---|---|--------------------------------|-------------------------------------|
| Northern Basin | Paroo  | 0                                 | NA                                  | 390   | 0.0                                       | -                              | N/A                                 |
|                | Warrego                                      | 8                                 | NA                                  |   | 8.0                                       | 0                              | 100%                                |
|                | Gwydir                                       | 42                                | NA                                  |   | 42.5                                      | 0                              | 100%                                |
|                | Nebine                                       | 1                                 | NA                                  |   | 1.0                                       | 0                              | 100%                                |
|                | Condamine-Balonne                            | 100                               | 143                                 |   | 25.0                                      | 207                            | 38.9%                               |
|                | Intersecting streams (including NSW Warrego) | 0                                 |                                     |   | 8.1                                       |                                |                                     |
|                | Moonie                                       | 0                                 |                                     |   | 1.1                                       |                                |                                     |
|                | Namoi  | 10                                |                                     |   | 4.8                                       |                                |                                     |
|                | Macquarie-Castlereagh                        | 65                                |                                     |   | 66.0                                      |                                |                                     |
|                | Queensland Border Rivers                     | 8                                 |                                     |   | 4.4                                       |                                |                                     |
|                | NSW Border Rivers                            | 7                                 |                                     |   | 0.1                                       |                                |                                     |
|                | Barwon-Darling                               | 6                                 |                                     |   | 22.3                                      |                                |                                     |
| Southern Basin | Ovens  | 0                                 | 971                                 | 2289  | 1,120                                     | 51.1%                          |                                     |
|                | Goulburn                                     | 344                               |                                     |   |   |                                | 0.0                                 |
|                | Broken                                       | 0                                 |                                     |   |   |                                | 325.3                               |
|                | Loddon                                       | 12                                |                                     |   |   |                                | 0.0                                 |
|                | Campaspe                                     | 18                                |                                     |   |   |                                | 2.9                                 |
|                | Murrumbidgee - NSW                           | 320                               |                                     |   |   |                                | 18.4                                |
|                | Murrumbidgee - ACT                           | 0                                 |                                     |   |   |                                | 148.7                               |
|                | Kiewa  | 0                                 |                                     |   |   |                                | 0.0                                 |
|                | Eastern Mount Lofty Ranges                   | 0                                 |                                     |   |   |                                | -                                   |
|                | NSW Murray                                   | 262                               |                                     |   |   |                                | -                                   |
|                | Victorian Murray                             | 253                               |                                     |   |   |                                | 216.7                               |
|                | SA Murray                                    | 101                               |                                     |   |   |                                | 360.1                               |
|                | Lower Darling                                | 8                                 |                                     |   |   |                                | 96.9                                |
|                | Marne Saunders / SA Non Prescribed           | 0                                 |                                     |   |   |                                | 0.4                                 |
| connected      | Lachlan                                      | 48                                | NA                                  | 71  | 48.7                                      | -                              | 100%                                |
|                | Wimmera-Avoca                                | 23                                | NA                                  |   | 0.0                                       | 1                              | 0%                                  |
| <b>TOTAL</b>   |  | <b>1,636</b>                      | <b>1,114</b>                        | <b>2,750</b>  | <b>1,401.3</b>                            | <b>1,349</b>                   | <b>51.0%</b>                        |

Notes:

1. Reductions to Sustainable Diversion Limit's data is sourced from the MDBA's proposed Basin Plan.

2. Includes water secured by contract under the 'Restoring the Balance in the Murray Darling Basin' program, water gifted to the Commonwealth by the Queensland Government, and water savings received and agreed under 'Sustainable Rural Water Use and Infrastructure' program (SRWUIP) works contracts all to 31 May 2012; and state government environmental water recoveries to 31 March 2012. Contracted water recovery figures are calculated using SEWPaC's estimates of the long term average annual yield of each entitlement. It was advised in the Murray-Darling Basin Ministers' Communique of 4 November 2011 that these would be used to determine how much of the 'gap' between the Baseline Diversion Limit (BDL) and the Sustainable Diversion Limits (SDL) has been 'bridged' through purchase and infrastructure projects. SRWUIP water recovery was previously reported (August 2011 and prior) at the point at which water savings were secured in a water transfer contract. Reported numbers from September 2011 onwards now include SRWUIP water recoveries which have been received or agreed in signed project works contracts. Until water transfer contracts have been exchanged however, these figures may be subject to change over time if proponents seek variations to existing project works contracts.

**APPENDIX D: ENVIRONMENTAL WORKS AND MEASURES FEASIBILITY PROGRAM**

| <b>State</b> | <b>Project Name</b>  | <b>Objectives</b>  | <b>Cost \$m</b> | <b>Project Reports Due</b> |
|--------------|--|--|-----------------|----------------------------|
| NSW          | Euston Lake restoration and improved water efficiency                              | Investigate the management of Euston Lakes to assess water efficiencies and environmental benefits through a more natural wetting and drying regime.   | 0.4             | 28 Feb 2013                |
| NSW          | Upper Murrumbidgee environmental flow enhancement                                  | Investigate the feasibility of raising the operational flow limit at Gundagai to allow improved environmental outcomes for mid-river wetlands (Wagga Wagga to Hay, NSW).   | 0.5             | 28 Feb 2013                |
| NSW          | Nimmie-Caira System Enhanced Environmental Water Delivery                          | Investigate the potential to enhance environmental water delivery to key ecological assets in the Lower Murrumbidgee floodplain and potentially downstream in the Murray Valley. Includes an investigation of the potential to off-set SDLs. | 0.2             | 28 Feb 2013                |
| NSW          | Piping Irrigation Demands  | Pre-feasibility investigations of the potential for water efficiency gains from developing pipelines to supply irrigation users in close vicinity to NSW State Water dams.   | 0.15            | 28 Feb 2013                |
| NSW          | Burrendong Dam   | Pre-feasibility study to investigate the potential environmental flow benefit from enhancing the outlet capacity at Burrendong dam, south east of Wellington, NSW.   | 0.2             | 28 Feb 2013                |
| NSW          | Southern Macquarie Marshes   | Environmental flow enhancement study will assess options for more efficient inundation of the South Macquarie Marsh.   | 0.2             | 28 Feb 2013                |
| NSW          | Investigation into efficient delivery of high priority stock and domestic supplies | Pre-feasibility assessments to identify additional water efficiency gains by piping stock and domestic water supply schemes including in the Macquarie, Murray, Murrumbidgee river systems.  | 0.15            | 28 Feb 2013                |
| NSW          | Modify weirs enhance floodplain inundation   | Strategic assessment (part feasibility) of Lock 8 weir on the Murray River to determine the optimal weir pool height for facilitating more efficient delivery of environmental water onto the floodplain in a range of flow events.          | 0.2             | 28 Feb 2013                |
| NSW          | State led community engagement project   | Identify community proposals and test these through pre-feasibility studies.   | 1.2             | 28 Feb 2013                |
| <b>NSW</b>   |  | <b>NSW Total</b>   | <b>3.2</b>      |                            |

|            |   |  |            |              |
|------------|---|--|------------|--------------|
| VIC        | Watering the Lindsay Island floodplain sub-project                      | Progress Stage 2 of the Lindsay Island project involving construction of a large weir and eight smaller regulators to improve inundation regimes for over 5000 hectares including large areas of River Red Gum floodplain.   | 1.1        | 31 Dec 2012  |
| VIC        | Watering the Wallpolla Island floodplain sub-project                    | Review existing concept designs for a three kilometre long channel and seven regulating structures proposed to improve inundation regimes of around 1,000 hectares of floodplain.  | 0.1        | 31 Dec 2012  |
| VIC        | Watering River Red Gum sites along the Murray sub-project               | Scoping studies and feasibility investigations into using structural works to deliver environmental water to various Victorian sites, between Echuca and the South Australian Border, including in the newly established reserves for the protection of River Red Gums.  | 0.2        | 31 Dec 2012  |
| VIC        | Watering black box wetlands in Gunbower forest sub-project              | Undertake detailed design of a 50 metre channel, off take regulator and fishway to deliver water from the Torrumbarry weir pool to the Gunbower forest.  | 0.45       | 31 Dec 2012  |
| VIC        | Watering the Hattah Lakes - Chalka Creek North sub-project              | Complete feasibility studies and progress detailed designs of an environmental regulator, upgrade roads and box culverts for Chalka Creek North. Builds on pump station that is to be constructed under The Living Murray program.   | 0.15       | 31 Dec 2012  |
| VIC        | State led community engagement project                                  | Identify community proposals and test these through pre-feasibility studies.   | 1.2        | 31 July 2013 |
| <b>VIC</b> |   | <b>Vic total</b>   | <b>3.2</b> |              |
| SA         | Katfish Reach and Pike Implementation (Stage 3)                         | Assess the feasibility of installing new environmental regulators in the Pike floodplain near Renmark and the Katfish Reach, Katarapko floodplain, south of Berri, South Australia.  | 0.65       | 31 Dec 2012  |
| SA         | Eastern Mount Lofty Ranges Low Flow Bypasses                            | Pre-feasibility hydrological modelling to determine the strategic placement of possible low flow bypass devices in dams.   | 0.18       | 31 Dec 2012  |
| SA         | Implications for environmental water delivery SDL offset investigations | Hydrological feasibility and risk assessments to determine the implications of river regulation scale environmental flows to South Australia. It will consider the potential for proposed environmental works and measures to offset SDLs from otherwise uncontrolled water losses in the South Australian Murray-Darling Basin. | 0.17       | 31 Dec 2012  |
| SA         | State led community engagement project                                  | Identify community proposals and test these through pre-feasibility studies.   | 0.8        | 31 Jan 2013  |
| <b>SA</b>  |   | <b>SA Total</b>  | <b>1.8</b> |              |

|              |  |   |                      |             |
|--------------|--|---|----------------------|-------------|
| Qld          | Queensland Murray Darling Basin Environmental Works and Measures project | Identify the prospects for environmental works and measures in priority locations for diversion limit reductions such as the Lower Balonne catchment of Queensland. | 1.0                  | 31 Dec 2012 |
| Qld          | State led community engagement project                                   | Identify community proposals and test these through pre-feasibility studies.  | 0.8                  | 31 Jan 2013 |
| <b>Qld</b>   |  |   | <b>Qld Total</b>     | <b>1.8</b>  |
| <b>Total</b> |  |   | <b>Total Program</b> | <b>10</b>   |

**UPDATE OF THE STATUS OF ENVIRONMENTAL WORKS AND MEASURES**

(Attachment B1 to the Government response of November 2011)

*The Commonwealth Government is providing a total of \$10million to Basin States for the investigation of suitable environmental works and measures projects. This includes \$6 million towards the cost of investigating 17 state government proposals for environmental works and measures. These proposals are:*

***New South Wales***

- Euston Lake restoration and improved water efficiency
- Upper Murrumbidgee environmental flow enhancement
- Nimmie-Caira System enhanced environmental water delivery\*
- Piping irrigation demands in the vicinity of State Water dams
- Burrendong Dam (outlet enhancement)
- Southern Macquarie Marshes (environmental flow enhancement)
- Investigation into efficient delivery of high priority stock and domestic supplies in the Macquarie, Murray and Murrumbidgee systems
- Modify Weirs to enhance floodplain inundation (environmental flow efficiency)

***Victoria***

- Watering the Lindsay Island floodplain\*
- Watering the Wallpolla Island floodplain
- Watering River Red Gum sites along the Murray
- Watering black box wetlands in Gunbower forest\*
- Watering the Hattah Lakes - Chalka Creek North\*

***South Australia***

- Katfish Reach and Pike Implementation (Stage 3) (environmental water delivery)
- Eastern Mount Lofty Ranges low flow bypasses
- Implications for environmental water delivery

***Queensland***

- Queensland Murray-Darling Basin environmental works and measures feasibility project

*\* These projects were identified by the Committee in its report.*



The Commonwealth Government is also providing the balance of \$4 million for state-led processes to assist the development of community-based environmental works and measures proposals.

### **Water Saving Proposals Identified by the Windsor Committee**

Of the 21 water saving proposals identified by the Committee, 14 projects (or similar projects in the same area) have been supported by the Australian Government funding commitments in the order of \$817 million. Five of these projects have been completed, namely:

- Water for Rivers Mokoan Project (\$23 million)
- CSIRO pilot study in the Torumberry Irrigation Area (\$3.9 million)
- Darling Anabranch Pipeline (\$15.4 million)
- The development of Barren Box Swamp as water and wetland storage (\$8.6 million).
- Northern Wimmera – Mallee Pipeline project (\$296 million including the Wimmera Mallee pipeline project)

These completed projects have recovered in the order of 180 GL of water for the environment.

Nine of the 14 projects receiving Australian Government funding are in various stages of development, as summarised below. Note, dollar figures refer to Australian Government funding.

- On-farm irrigation efficiency project led by the Goulburn-Broken Catchment Management Authority. The Australian Government contributed funding of \$20.9m towards Stage 1 for 4.9GL of water entitlements and as at November 2011, 15 (30%) of the total 76 projects were completed. The Australian Government also agreed in principle to contribute \$25.1 million for Round 2 with 81 projects currently proceeding to works agreement phase.
- The Australian Government has committed additional on-farm efficiency funding of approximately \$43m for projects across the Goulburn Broken region, administered by the Northern Victoria Fresh Tomato Industry Development Committee, Fruit Growers Victoria Limited, Irrigation Efficiency Partners and the Australian Processing Tomato Research Council Inc.
- Hattah Lakes: Stage one structural and engineering works at Hattah Lakes is underway and is receiving \$29 million under the Living Murray Environmental Works and Measures program. Additional investigations work at Chalka Creek is receiving funding of \$150,000 under the Environmental Works and Measures Feasibility program ('EWMF').
- Lindsay Island Strategic infrastructure and focussed watering program: concept and design is receiving \$7 million under the Living Murray Environmental Works and Measures program. Stage one has progressed to construction and stage two is receiving funding support of \$1.1 million under the EWMF program to revise concept designs and undertake further studies.
- Gunbower Forest Structural and Engineering works: \$24.4 million is being provided under the Living Murray Environmental Works and Measures program for concept design and the project is progressing to detailed design and construction at Lower landscape and Hipwells Road. Additional investigation into

work at Torumbarry Weir is receiving funding support under the EWMF program totalling approximately \$0.45 million.

- On-Farm Irrigation Efficiency Program: Through funding agreements signed with Murray Irrigation Limited, the Australian Government has committed \$28.1 million to returning 12.0 GL under round one of the program, and committed \$33.1 million returning 36.1GL under round two.
- Murrumbidgee Water for Rivers: The Australian Government has committed \$23.5 million for 20GL (high security) and 20 GL (general security) for better management of the Murrumbidgee River. Australian Government funding has also been provided under round one of the On-Farm Irrigation Efficiency Program for \$16.9 million for on farm works in the Murrumbidgee, delivering 8 GL of general water security entitlements.
- Murray Channel Decommissioning: \$15.5 million was committed under the Irrigator Led Group Proposals program for decommissioning 20 km of channels with savings of 16.6 GL in the Murray catchment. However, this proposal was later withdrawn by the irrigator group. (Note there was an incorrect reference to the Murrumbidgee in relation to this project in the November 2011 response to the Windsor Inquiry)
- Lake Wyangan catchment: \$50 million is under contract under round one of the Private Irrigation Infrastructure Operator Program for the planning, design and implementation of a new water supply to the Lake Wyangan Catchment.
- Lower Murrumbidgee (Nimmie-Caira) site: \$200,000 in funding from the new Environmental works and measures program is being provided towards investigating the potential to provide both significant environmental benefit and reduced environmental water requirements through changed land use and the use of existing or enhanced infrastructure to better deliver environmental water.

Of the remaining seven projects identified by the Committee that have not received direct Australian Government funding, two projects (or similar projects in the same area) have been approved for funding under round two of the Private Irrigation Infrastructure Operations Program ('PIIOP'), namely:

- Wah Wah Channel Stock and Domestic Pipeline Project:
- Murray Irrigation Limited Modernisation Plan works, up to \$169 million and returning 38GL (LTAAY) of water entitlements to the Commonwealth. The project includes decommissioning of channel sub-system (the Murray sub system retirement package mentioned in Appendix E to the Committee's report).

A further project, a proposal to close the Wimmera irrigation system has been conditionally agreed for funding. The applicants are obtaining information to demonstrate that the funding conditions for the Irrigator Led Group Proposals Program have been met.

The final two projects identified by the Committee that are not covered above have already proceeded without direct Australian Government funding, namely:

- Mirrool Creek reconstruction of channelised sections is being managed by Murrumbidgee Irrigation Limited and is near completion.
- Futureflow Shepparton project was subsumed into the Northern Victorian Irrigation Renewal project stage 1 and is now complete.

\* Note: Australian Government funding figures are rounded and include Australian Government contributions to jointly funded programs such as Water for Rivers and The Living Murray.