



Australian Government

Australian Government response to the
Senate Rural and Regional Affairs and Transport References
Committee report:

Management of the Murray-Darling Basin

March 2018

Introduction

The Murray-Darling Basin Plan (Basin Plan) was signed into law on 22 November 2012 and tabled in the Parliament on 26 November 2012. It passed the Parliament without disallowance in March 2013.

The Senate Rural and Regional Affairs and Transport References Committee presented its final report for the inquiry *Management of the Murray-Darling Basin* on 13 March 2013. The report made 23 agreed recommendations, with a further four recommendations from Senator Nick Xenophon. The Government's response to each of these recommendations is set out in this document.

Committee majority recommendations

- 1. The committee recommends that the Murray-Darling Basin Authority develop a concise and non-technical explanation of the hydrological modelling and assumptions used to develop the 2750 GL/y return of surface water to the environment, to be made publicly available.**

Agreed.

Plain English summaries of the scientific basis of the 2750 GL/yr figure are provided in the document '*Delivering a healthy working Basin: about the draft Basin Plan*' and in fact sheets on hydrological modelling and the Environmentally Sustainable Level of Take (ESLT). All are available on the Murray-Darling Basin Authority (MDBA) website. The MDBA has also provided non-technical explanations of other aspects of Basin Plan modelling, which are publicly available.

- 2. The committee recommends that the MDBA specifically include the predicted range of impacts of climate change on water runoff when implementing the relevant risk management strategies under chapter 4 of the Basin Plan.**

Agreed.

The predicted 2030 climate scenarios for the Murray-Darling Basin are well within the historic variability of the system based on the 114 year modelling record used in developing the Basin Plan. The Basin Plan is an effective framework for adapting to climate variability because it will ensure that the Basin state water resource plans to be accredited by 2019 are able to operate over a range of climate scenarios including wet and dry sequences. Further, the periodic review cycle for the Basin Plan (and state water resource plans) means that new and better estimates of climate impacts on water availability can be factored in when available.

To develop the settings in the Basin Plan, the MDBA collaborated with CSIRO, the then Department of Climate Change and Energy Efficiency, the Bureau of Meteorology and the Victorian Department of Sustainability and Environment in the \$16.5 million South Eastern Australian Climate Initiative (SEACI) research partnership. The SEACI findings guide the

risk management strategies relating to the implementation of the Environmental Watering Plan, the Water Quality and Salinity Management Plan, water resource planning and the water trading rules under Chapter 4, Section 4.03(3)(a) of the Basin Plan.

The MDBA has also worked with CSIRO to assess the likely impacts of climate variability on water availability across the Basin. Twenty-four river systems models developed by various agencies across the Basin have been pulled into an Integrated River Systems Modelling Framework to assess links between future climate scenarios and:

- flows in various parts of the Basin;
- water allocations to different water users;
- water availability in dry and wet years; and
- impacts on key environmental assets.

The Basin Plan requires that reviews under the provisions of Chapter 6 have regard to the management of climate risks and include an up-to-date assessment of those risks.

There is an obligation under Chapter 4 of the Basin Plan to improve knowledge over time of the projected impact of climate on water requirements. An updated assessment of the projected range of impacts of climate variability on water runoff will form part of the work to improve this knowledge.

Under Chapter 10 of the Basin Plan, States must consider the risks to the availability of water from climate variability when developing water resource plans, and set out how water will be managed during extreme dry periods.

3. Consistent with Recommendation 20, the committee recommends that the government develop a clear research strategy on the future impacts of climate change on water runoff in the Basin. The strategy should also include a process for integrating the results of the research into the adaptive management process under the Basin Plan.

Agreed.

Potential impacts on the Basin's water resources from climate variability will be taken into account in future reviews of the Basin Plan. As noted in the response to Recommendation 2, reviews of the Basin Plan under Chapter 6 have regard to the management of climate risks and include an up-to-date assessment of those risks, which provides the opportunity to integrate the results of research into the adaptive management process under the Basin Plan.

The requirements under Chapter 4 of the Basin Plan for improved knowledge about the effects of climate variability provide the framework within which this work is to take place.

- 4. The committee recommends that the MDBA model a range of possible future intercept scenarios and publish the results so that each state can better plan for the impacts of the interception on its overall consumptive water allocation.**

Agreed in principle.

The Basin Plan took interception activities into account in determining the Environmentally Sustainable Level of Take (ESLT). Thus, for the first time, the estimate of interception is included in the Sustainable Diversion Limit (SDL) for each river valley and for the SDL for the Basin as a whole. In addition, under Section 4.03 of the Basin Plan, the MDBA is required to further improve knowledge of the impact of interception activities and land use changes on Basin water resources.

Under Chapter 10 of the Basin Plan, Basin states are required to manage risks to water resources in water resource plans. In developing water resource plans, the Basin states must monitor and regulate interception activities with a significant impact on water resources. To ensure consistency with the Basin states' land use policies, modelling of future interception scenarios would be best undertaken by Basin state governments.

- 5. The committee recommends that, in undertaking its adaptive management approach to the Basin Plan, the Murray Darling Basin Authority clearly considers, assesses and incorporates all elements that could impact environmental watering requirements. This includes climate change, interception activities, coal seam gas mining, surface-groundwater connectivity and possible negative effects such as over watering caused by increased river flows. This information should be clearly set out in non-technical language and be made publicly available in a timely manner.**

Agreed.

The Basin Plan requires that the new Basin state water resource plans, which will be in place by 2019, identify and assess any risk to water resources in the area and include local management arrangements where necessary. It specifically requires these plans to take into account potential climate change, interception activities and surface and groundwater connectivity. The MDBA has developed a plain-English guide on water resource plan requirements called the *Handbook for Practitioners*, which is available on the MDBA website.

The MDBA sets environmental watering priorities at a Basin-scale annually, taking into account all of the above factors where applicable. This regular review of priorities considers prevailing climatic conditions and, together with the five-yearly review of the Basin-wide Environmental Watering Strategy and the Basin states' long-term (regional) watering plans, will ensure that new information is incorporated into assessments of environmental watering requirements. These reviews, together with non-technical explanations, are made available on the MDBA website.

6. The committee recommends that before 2016 the MDBA undertake a thorough review of the groundwater aspects of the Basin Plan including:

- **the methodology and the assumptions underpinning the groundwater BDLs and SDLs; and**
- **the connectivity of all groundwater and surface water resources to ensure that the modelling used in the Basin Plan is scientifically sound.**

Agreed.

Chapter 6, Section 6.06(1) states that the MDBA may conduct research and investigations into aspects of the work underpinning SDLs or other aspects of the Basin Plan. The MDBA has undertaken such research.

For example, the MDBA entered into a strategic research partnership with the National Centre for Groundwater Research and Training (NCGRT). A key part of the research is to benchmark the methodology and the assumptions used to determine the Basin Plan groundwater SDLs. The research is also looking at methods to determine the connectivity between surface and groundwater resources at an SDL resource unit scale. This research will inform future reviews of the Basin Plan.

The repealed Sub-section 6.06 (6)-(9) of the Basin Plan specified reviews of the Baseline Diversion Limits (BDLs) and SDLs for three groundwater areas in New South Wales and Victoria within two years of commencement of the Basin Plan. All three reviews were completed by expert panels by November 2014. The reviews recommended that an increase in the groundwater SDLs in each area would be acceptable, provided the Basin states embed more stringent local management rules for the groundwater areas in the relevant water resource plans. These changes were made in the Basin Plan Amendment Instrument 2017 (No.1), which commenced on 14 November 2017. This instrument also repealed the provisions of Sub-section 6.06 requiring the three reviews, as they are spent provisions now the reviews are complete. On 14 February 2018 this instrument was disallowed by the Australian Senate.

In documenting the methods and assumptions used in determining the groundwater BDLs in *The Addendum to the proposed Groundwater Baseline and Sustainable Diversion Limits: methods report* (July 2012), the MDBA addressed comments made by an external expert panel involved in the review of the BDL methodology.

7. The committee also recommends that in conducting this review the MDBA should consult with a range of scientific experts. To ensure reliability, the final review findings should be peer reviewed by the CSIRO. To ensure transparency, the results of the review should be published by the MDBA.

Agreed.

The MDBA has worked with groundwater experts from organisations including the CSIRO and other independent experts in developing groundwater extraction limits for the Basin

Plan. A panel of independent experts (which included a CSIRO representative) peer-reviewed the methods and models used to determine the groundwater SDLs, and CSIRO was represented on the panels undertaking the three groundwater reviews mentioned in Recommendation 6. The three review reports are available on the MDBA website.

- 8. The committee recommends the MDBA conduct further research into how effective the works and measures programs are for delivering environmental outcomes and the cost effectiveness of such projects in comparison to other forms of water recovery. This research should also include the socio-economic impacts to irrigation communities of increased levels of 'buyback'.**

Agreed.

Chapter 7 of the Basin Plan provides for an SDL adjustment mechanism. The mechanism enables the Basin SDL to be adjusted up or down by no more than five per cent as long as social, economic and environmental outcomes are not compromised. SDL adjustments can be achieved through either supply measures (works and measures or changes to river operational rules that achieve equivalent environmental outcomes with less water) or efficiency measures (recovery of additional water for the environment without detrimental social or economic impacts).

The *2013 Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin* agreed between the Australian Government and all Basin state governments contains a protocol that sets out how governments will assess and agree to a package of adjustment measures including constraint, supply and efficiency measures. The Australian Government has made up to \$34.5 million available to Basin States to develop business cases for prospective supply measure projects. Agreed supply measures will be funded by the Australian Government up to the market value of environmental water that would otherwise have been recovered from held water entitlements.

The MDBA continues to collect social and economic data to inform its role in evaluating and reviewing the Basin Plan, including through the northern Basin review. The social and economic assessment conducted as part of the northern Basin review is available on the MDBA's website. The *Water Act 2007* and Basin Plan require regular reporting of socio-economic impacts. In December 2017 the MDBA published its first Basin Plan Evaluation, including of the effects of water recovery at the community scale, with more community-level analysis to be released by April 2018. A second report is due in 2020 and subsequent reports every five years thereafter. Further, as part of the Six Point Agenda for delivering the Basin Plan announced on 25 November 2017, the Australian Government will establish a robust program of monitoring and evaluating the long-term socio-economic outcomes and impacts associated with Commonwealth-funded water recovery programs.

- 9. The committee recommends that the MDBA and SEWPaC provide ongoing public updates to Basin stakeholders on progress in securing water savings from environmental works and measures.**

Agreed.

The Protocol to the *2013 Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin* provides for the Basin Officials Committee and the MDBA to develop and maintain a joint work program identifying all SDL adjustment measures, including supply measure environmental works and measures. The work program is endorsed at each Murray-Darling Basin Ministerial Council meeting and subsequently published on the MDBA website, including details of measures and expected water savings.

Basin state governments are responsible for developing specific SDL adjustment proposals, including any necessary consultation with the community. The MDBA's role is to assess the final package and recommend to the Minister the amount of any SDL adjustments.

As requested by the Murray-Darling Basin Ministerial Council, the Australian Government passed amendments to the Basin Plan (through the *Water Legislation Amendment (Sustainable Diversion Limit Adjustment) Act 2016*) in November 2016 to provide for a second notification step by 30 June 2017. This has provided Basin state governments with an opportunity to develop and refine projects that can further improve the outcomes of the Basin Plan while ensuring the continued success of irrigation in the Basin through sound investment in infrastructure whether on or off farm.

A final package of SDL Adjustment Mechanism projects was agreed by the Murray-Darling Basin Ministerial Council on 16 June 2017. The MDBA has proposed a SDL adjustment offset of 605 gigalitres in its Draft Determination Report released on 3 October 2017. An outcome of this magnitude will likely mean that, once all contracted water recovery has been delivered, no further water recovery will be required to bridge the SDL gap in the Southern Murray-Darling Basin.

Consistent with Basin Plan requirements, in late 2017 the MDBA consulted with Basin State governments and the public on its proposed SDL adjustment determination. The MDBA then proposed an amendment to the Basin Plan for the SDL Adjustment Mechanism that was subsequently adopted by the Minister for Agriculture and Water Resources. The Basin Plan Amendment (SDL Adjustments) Instrument 2017 commenced in law on 13 January 2018, the day after registration on the Federal Register of Legislation. The instrument was tabled in both Houses of the Federal Parliament on 5 February 2018 for 15 sitting days as a disallowable legislative instrument.

- 10. The committee recommends that greater detail on the socio-economic costs and benefits of any proposed constraints removal be presented to affected communities and the public in general. Such information should be publicly updated in a timely manner when changes occur or new information is obtained by the MDBA and SEWPaC.**

Agreed.

The MDBA published the Constraints Management Strategy (the Strategy) in November 2013, which evaluates the risks and opportunities associated with addressing

constraints. The Strategy is being used to help inform the development of constraints measure proposals by Basin states. The Strategy advises that projects should

- recognise and respect the property rights of landholders and water entitlement holders;
- not create any new risks on the reliability of entitlements;
- be identified in consultation with affected parties to determine if impacts can be appropriately addressed and mitigated to enable changes to proceed;
- identify and aim to achieve net positive impacts for the community;
- be worked through in a fair and transparent/equitable way; and
- work within the boundaries defined by the *Water Act 2007*, the Basin Plan and relevant state water access and planning systems.

Basin state governments are responsible for developing proposals for relaxing flow constraints in the Basin. In the process, proponent states will consult with potentially affected landholders and communities in order to better understand local issues of concern and to identify any potential for adverse impacts.

A number of constraints projects have been included by Basin jurisdictions in the notification of 'supply' measures to the MDBA for consideration under the SDL adjustment mechanism. As such, these projects have contributed to the SDL offset arising from the operation of the mechanism, thereby enabling more water to remain available for use in irrigation agriculture.

Australian Government funding for constraints measure projects will be limited to those projects where any adverse third party impacts can be addressed to the satisfaction of landholders and communities.

The MDBA produces annual progress reports to Basin Ministers on developments in matters covered by the Strategy. The reports are available on the MDBA website.

11. The committee recommends that further consultation regarding constraints management and the additional 450 GL/y should remain a high priority for the MDBA and SEWPaC. To ensure consultation is adequately undertaken, the committee recommends that the MDBA and SEWPaC develop and publish a strategy that identifies and provides solutions for previous shortcomings (see chapter seven) in the government's consultation process for developing the Basin Plan.

Agreed.

The Australian Government regards community input as a fundamental component of the development of proposals to address constraints on the management and use of environmental water. As agreed under the *2013 Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin*, Basin state governments are the key decision makers for addressing constraints within their jurisdiction, and responsible for associated stakeholder consultation.

Australian Government funding for constraints measure projects will be limited to those projects where any adverse third party impacts can be addressed to the satisfaction of landholders and communities.

The Murray-Darling Basin Ministerial Council commissioned an independent expert analysis on how best to design, target and resource efficiency measure programs to recover 450 gigalitres by 30 June 2024, consistent with the Basin Plan legal requirement to achieve neutral or improved socio-economic outcomes. The study has taken into account information arising from the MDBA's evaluation of the Basin Plan impacts and any other relevant information, and will provide Ministers with a comprehensive set of information on the socio-economic impacts of the recovery of the 450 gigalitres through efficiency measures, consistent with the Basin Plan legal requirement for neutral or beneficial socio-economic outcomes. This evaluation, supported by other relevant analysis such as studies by State governments, will form the basis of knowledge to inform the expert advice on design efficiency measure projects to mitigate such impact. The independent expert analysis report was publicly released on 19 January 2018 and is available on the Department of Agriculture and Water Resources website. The Ministerial Council has received a briefing on the report and will consider the pathway for efficiency measures in 2018.

12. The committee recommends that the government develop a water trading information and support program aimed at helping possible "distressed sellers" understand their financial options and risks relating to water trading.

Agreed in principle.

The water market has significantly evolved in the last 15 years, particularly in the southern Murray-Darling Basin. Water entitlements and water allocations form the bulk of water that is traded in the Basin. Information on both entitlement and allocation water trading is available on State, Territory and Australian Government websites. This information covers the specific rules and associated water trading application forms required to trade water within and between the State and Territory jurisdictions.

The technology that supports water trading is becoming increasingly sophisticated, enabling more diverse trading platforms for buyers and sellers. The market includes forward purchasing of water allocations and carryover products, however the development of secondary markets is still in its infancy. As these products develop, market participants will be educated about the service through the service delivery organisation.

Current and historical information on water trading is available in a range of publications, such as the Bureau of Meteorology's 'National Water Account' and the 'Australian Water Markets Report', which is now published by ABARES. The Australian Government also publishes a quarterly summary of water entitlement market prices prepared by an independent consultant. All reports are available on the Department of Agriculture and Water Resources website.

Information on the average prices paid for water entitlements through past open market tenders conducted by the Department of Agriculture and Water Resources (formerly part of the Department of the Environment) is reported on the Department's website.

The information on the state registers, Commonwealth department websites and the publications listed above is made available to help irrigators who are considering selling their water entitlements to make an informed decision. In addition, irrigators may seek advice from brokers and agents to gain a local understanding of the state of the water market.

Past performance of the water market is not a reliable indicator of future performance, as the market fluctuates due to several factors, primarily climate. Individual participation in the water market is a reflection of their business model, personal circumstances and risk profile.

Individuals facing financial hardship can access financial counselling services through the Rural Financial Counselling Services (RFCS) program. The purpose of this program is to provide free support to primary producers, fishers and small rural businesses who are suffering financial hardship, and who have no alternative sources of impartial assistance, to manage the challenges of change and adjustment. This support would form part of an overall case management approach to assist the client to become more financially viable.

13. The committee recommends that the government undertakes explicit auditing and reporting of the extent and impact of sleeper and dozer licences on the Basin Plan.

and

14. The committee recommends this audit be publicly released and that updated audit information is incorporated into the MDBA's reporting on the Basin Plan at regular intervals.

Agreed in principle.

The Basin Plan sets sustainable limits on water diversions, regardless of use and behaviour across the range of individual entitlement holders. This includes a requirement for state water resource plans to account for changes over time in the extent to which water allocations are utilised. Auditing and reporting on this issue will take place through implementing the Basin Plan.

Any reports produced as a result of research or investigations that the MDBA conducts under the Basin Plan (Chapter 6.06 and Chapter 13), or at the request of the Ministerial Council, will be published on the MDBA website.

15. The committee recommends that the MDBA commission an independent review of the possible effects of using a range of assumptions of water entitlements types (e.g. high and low reliability) in the hydrological and socio-economic modelling of the Basin Plan. In the case where the results for certain water entitlement assumptions show that the objectives of the plan will be compromised, the MDBA

should develop a policy which will ensure that this arrangement of water entitlements will not be realised.

Agreed in principle.

MDBA modelling and analysis for the Basin Plan was based on an assumption that the SDL reductions would be achieved through the recovery of a representative mix of entitlements in each valley.

The Australian Government agrees that using a range of assumptions in any future modelling, including water availability for consumptive purposes by entitlement type, may help inform any future review of the Basin Plan.

- 16. The committee recommends that the Australian National Audit Office (ANAO) review the Nimmie-Caira proposal. To the extent possible and in collaboration with the NSW Audit Office if necessary, the review should amongst other things examine the process undertaken by relevant parties for determining the value of all aspects of the Nimmie-Caira proposal. The review should also examine any factors that may impact on the value for money for the government and the tax-payer of the proposal should it proceed. The ANAO should report on this review prior to the approval of the Nimmie-Caira proposal by the Department of Sustainability, Environment, Water, Population and Communities.**

Agreed.

The Australian National Audit Office (ANAO) reviewed the project and the ANAO report on the funding and management of the project was tabled in Parliament (out of session) on 21 April 2015.

- 17. The committee recommends that the MDBA update the socio-economic modelling of the local impacts of the Basin Plan. There should be a strong focus on the communities likely to be most affected by the Basin Plan and strategies should be developed to address the impacts. All such information should be publicly released and presented in a form that is accessible to stakeholders, local community members, and parliamentarians. This modelling should also include tabular or graphical data depicting the location and volumes of buyback on an irrigation district basis.**

Agreed.

The MDBA has released the following reports into the impact of Basin water reform at a local level. These reports are available from the MDBA website:

- MDBA 2016, *Northern Basin Review. Technical overview of the socioeconomic analysis.*
- EBC, RMCG, MJA, EconSearch, Geoff McLeod, Tim Cummins, Guy Roth and David Cornish 2011. *Community impacts of the Guide to the proposed Murray-Darling Basin Plan.*

- Arche Consulting 2011. *Basin case studies: the socio-economic impacts of sustainable diversion limits and Water for the Future investments. An assessment at a local scale.*
- ABARE-BRS 2010, *Indicators of community vulnerability and adaptive capacity across the Murray-Darling Basin – a focus on irrigation in agriculture.* A revised version of this report was released in April 2013.
- ABARE-BRS 2010, *Environmentally sustainable diversion limits in the Murray-Darling Basin: Socioeconomic analysis.*

The *Water Act 2007* and Basin Plan require regular reporting of socio-economic impacts. This occurs in a number of ways including through Basin Plan annual reports and five yearly reports on the socio-economic impacts of the Basin Plan. The MDBA published the first of these reports in December 2017, with community-level analysis to be released by April 2018. A second report due in 2020 and subsequent reports every five years thereafter.

In relation to public release of water recovery data, monthly updates of water recovery at a catchment level are published on the Department of Agriculture and Water Resources website. The reporting includes monthly updates of environmental water recovery to indicate progress made, by catchment, to bridge the gap to the SDLs contained in the Basin Plan.

18. The committee recommends that the Government develop a formal process for long-term and integrated engagement with key stakeholders on the implementation of the final Basin Plan.

Agreed.

The MDBA, Commonwealth Environmental Water Holder (CEWH) and Basin state governments have committed in the Basin Plan Implementation Agreement to a collaborative approach to working with the community. This includes efficient, coordinated processes that build on existing Basin State arrangements and recognise long-standing consultative structures and mechanisms.

The Basin Community Committee, Northern Basin Aboriginal Nations and the Murray Lower Darling River Indigenous Nations are key means for the MDBA to engage on Basin Plan implementation. The MDBA is also ensuring peak bodies and regional communities can stay abreast of, and contribute to, issues across the Basin Plan through overarching and technical meetings.

The CEWH is supported by six Local Engagement Officers, who live and work in Basin communities. These officers, in conjunction with state government officials, engage with local communities about how to best use environmental water including through environmental water advisory groups.

Basin States are also responsible for water resource management in their own areas, including consultation over the development of supply and constraints proposals as

discussed previously, and the development of water resource plans for accreditation under the Basin Plan.

19. The committee recommends that the MDBA provide a clear explanation of how 'localism' is to be implemented under the Basin Plan.

Agreed.

Implementation of the Basin Plan and associated reforms is a cooperative endeavour involving the Australian Government (including the MDBA) and Basin state governments in consultation with the Basin community. The MDBA is committed to ensuring that local communities are engaged in the management of their part of the river system. Such opportunities include input to the northern Basin review, the SDL adjustment mechanism (through Basin states), the constraints management strategy (now via Basin states), the development of Basin annual watering priorities, and future reviews of the Basin Plan. Each year, the MDBA publishes information on how local knowledge and expertise has been applied by respective governments in its annual reports on the effectiveness of the Basin Plan.

In addition, the CEWH has established a 'good neighbour policy' which guides the management of Commonwealth environmental water and articulates the approach to localism in environmental water management. This approach involves working with local communities and interested stakeholders to design and implement watering actions and listening in order to understand people's issues and concerns. The policy focuses on collaboration, transparency and continual improvement.

The MDBA is building on connections with communities across the Basin through partnerships with six local organisations to host Regional Engagement Officers. The Regional Engagement Officers assist the MDBA to engage more effectively with Basin communities.

The Regional Engagement Officers also work collaboratively with the Commonwealth Environmental Water Office to reduce duplication and increase cooperation between government agencies. The six partner organisations are:

- Greater Shepparton City Council – Shepparton, Victoria
- Leeton Shire Council – Leeton, NSW
- RDA Darling Downs and South West Qld – St George, Queensland
- North East Catchment Management Authority – Wodonga, Victoria
- SA MDB Natural Resource Management Board – Murray Bridge, South Australia, and
- Wentworth Shire Council – Wentworth, NSW

The MDBA increased its regional presence and links with Basin communities by opening offices in Toowoomba, Queensland; Albury-Wodonga, on the NSW and Victorian border; and Adelaide, South Australia. Regionally based staff assist the MDBA to improve information exchange with communities, and give communities a better understanding of the MDBA's work.

20. The committee recommends that the government develop and publish a detailed policy for agricultural productivity, environmental and water resource R&D in the Murray-Darling Basin. This policy should reflect a greater priority in this area and incorporate the specific research areas identified in recommendations throughout this report.

Agreed in principle.

The Australian Government agrees that research and development (R&D) plays a major role in agricultural productivity and is important for growth and improvement in the profitability and sustainability of Australian agriculture, including irrigated agriculture in the Basin.

The Australian Government has prepared the National Water Use in Agriculture Research, Development and Extension (RD&E) strategy, with an updated version launched in December 2015. The strategy aims, through research and development and extension, to support farm water productivity whilst enhancing environmental and social sustainability.

The national approach to rural R&D was endorsed by all States and the Northern Territory in the National Primary Industries Research, Development and Extension Framework. With the Basin contributing approximately 40 per cent of the national income derived from agricultural production, the Basin regions' needs are strongly reflected in RD&E priorities and direction.

The Australian Government has been investing in environmental water research through the \$10 million Murray-Darling Basin Environmental Water Knowledge and Research Project, which seeks to improve the knowledge available to support the evolving needs of environmental water managers. This project, administered by the Commonwealth Environmental Water Office, will improve understanding of the complex ecological systems in which environmental water is managed and will inform the application of environmental water into the future.

21. That the Government commission the Australian Bureau of Agricultural and Resource Economics and Sciences to undertake a cost-benefit analysis of potential water-efficient crops (including non-paddy rice) in the Murray-Darling Basin.

Agreed in principle.

The Australian Government continues to work with rural industries to constantly re-evaluate existing, and identify new R&D priorities.

There is a significant research focus at both Commonwealth and State government levels on water use efficiency, including water efficient crops. Further to this, State government extension officers, private consultants, farm business management advisers and agronomists continue to provide advice on water efficient crops and water efficiency technologies to farmers.

ABARES has produced industry-specific reports for irrigated dairy, wine grapes, cotton, horticulture (excluding wine grapes) and rice. These industry specific reports contain information on: trends in farm financial performance (e.g. farm cash income, rate of return); proportions of farms trading water (both temporary water and permanent entitlements); trends in water use (including areas irrigated and water application rates by crop type); use of irrigation technologies (including by crop type). These (and previous) reports also include some discussion on key factors that drive farm business decision-making, and therefore influence changes in size and types of crop/livestock enterprises, irrigation technologies used and water use. The reports are available on the Department of Agriculture and Water Resources website.

The Australian Government considers it important that R&D priorities are evaluated on an ongoing basis and that future investment directions are industry driven to ensure that limited resources are allocated to best address industry requirements.

22. The committee recommends that the Government commission research into innovative agricultural soil use and farming practices that will improve agricultural productivity and water efficiency in the Murray-Darling Basin.

Agreed.

The National Soil RD&E Strategy released in 2014 directs the Australian Government's investment in rural R&D including investment directed towards agricultural soil use research, sustainable farming practices and water use efficiency. This research aims to improve understanding of a number of soil related functions including soil chemical balances that will lead to increased productivity through better soil management and water use efficiency.

23. The committee recommends that the Government prioritise R&D into water infrastructure to meet the needs of farming communities, agricultural production, and the environmental health of the Murray-Darling Basin.

Agreed in principle.

The Water Use in Agriculture Strategy developed under the National Primary Industries Research, Development and Extension Framework is addressing all levels of water use and water management. It includes a focus on irrigation water infrastructure delivery and management that will complement the Australian Government's investment through the *Sustainable Rural Water Use and Infrastructure Program* (SRWUIP) in key rural water use, management and efficiency projects in the Basin.

Additional comments by Senator Xenophon - Recommendations

- 1. The MDBA conduct urgent modelling of a number of figures above the 2750 GL/y figure, up to 4000 GL/y. This modelling must be publicly released with both a technical and non-technical explanation and conducted in a timely manner.**

Agreed in part.

In 2011 the MDBA modelled the scenarios of 2800GL and 3200GL with and without the present operating constraints. The results of this modelling were published by the MDBA in *The proposed 'environmentally sustainable level of take' for surface water of the Murray-Darling Basin: Method and outcomes* (MDBA 2011), and *Hydrologic modelling of the relaxation of operational constraints in the southern connected system: Methods and results* (MDBA 2012), which are both available on the MDBA website.

- 2. Urgent modelling be undertaken to establish the comparative efficiencies of irrigation communities in the Murray-Darling Basin to ensure fair treatment of irrigators, particularly with respect to allocating funds for water efficiency projects.**

Not agreed.

The Australian Government does not believe such modelling is required given the way water efficiency programs have been managed since September 2013.

The SRWUIP is a national program that invests in rural water use, management and efficiency. Water savings achieved through this program contribute substantially towards 'bridging the gap' to the SDLs under the Basin Plan and also return water savings to irrigators and regional communities. The focus of irrigation modernisation investment has been on improving the efficiency of off-farm delivery systems and on-farm irrigation systems, and on returning a share of the water savings to the environment. Comparing average efficiency of different regions is not an appropriate guide for where investments should be made. Across the Basin individual farm efficiencies (and delivery system efficiency) can vary significantly within districts and within broader regions.

Programs funded through SRWUIP, such as the On-Farm Irrigation Efficiency Program, are assessed on a competitive grants model basis against merit criteria outlined in the program guidelines to ensure the best applications are selected for funding. This aim is to achieve the greatest gain in efficiencies for the total dollars invested in eligible activities, thereby minimising any potential need for water purchase to 'bridge the gap' to the SDLs under the Basin Plan.

A large proportion of SRWUIP funding is committed to State Priority Projects (SPPs) under the 2008 *Murray Darling Basin Intergovernmental Agreement*. Whilst the projects that are to be funded under the SPPs are usually determined by the relevant State, the Commonwealth's investment principles for this funding are that:

- a) projects must be able to secure a long-term sustainable future for irrigation communities;

- b) projects must deliver substantial and lasting returns of water to the environment to secure real improvements in river health; and
- c) projects must be value for money in the context of the first two tests.

3. Irrigators must receive recognition for their past water efficiencies. In the absence of any prior recognition for past water-saving efforts, the guidelines for the Sustainable Rural Water Use and Infrastructure Program and other similar programs should be amended to allow irrigators to apply for funding for research and development as well as for emerging technologies projects.

Not agreed.

The Australian Government is committed to research and development within the irrigation industry and has been involved for a number of years in funding of institutions such as the Cooperative Research Centre (CRC) for Cotton Catchment Communities, and previously the CRC for Sustainable Irrigation Futures. Further, the well-established system of agriculture research funding provided by the rural research and development corporations is a primary source of research and development funds for the sector.

Assessment guidelines for programs funded under the SRWUIP are not restrictive regarding the type of technology proposed for farm level water saving projects. Applicants can propose the technology that is best suited to their business enterprise, be it a well-established technology or one which has recently emerged, provided the proponent is prepared to return a portion of the water savings to the Commonwealth in return for the investment.

4. The MDBA urgently provide evidence that the current market-based buyback approach will not distort the water and commodity market. In absence of any available evidence, the MDBA conduct urgent modelling on the impact the market-based buyback approach will have on those who have not accessed funds under the Federal Government's \$5.8 billion Sustainable Rural Water Use and Infrastructure Program and other similar programs.

Agreed in part.

The Australian Government's approach to water recovery in recent years has been to prioritise investment in productivity-enhancing water infrastructure and to cap surface water purchases to within 1,500 gigalitres.

The government will review the need for any future water recovery, following the northern Basin review and the operation of the SDL adjustment mechanism.