



Australian Government



Annual Progress Report 2020

Sustainable Diversion Limit Adjustment Mechanism

June 2020

Published by the Murray–Darling Basin Authority
MDBA publication no: 26/20
ISBN (online): 978-1-925762-93-8



GPO Box 1801, Canberra ACT 2601
engagement@mdba.gov.au



1800 230 067
mdba.gov.au

© Murray–Darling Basin Authority 2020

Ownership of intellectual property rights



With the exception of the Commonwealth Coat of Arms, the MDBA logo, trademarks and any exempt photographs and graphics (these are identified), this publication is provided under a *Creative Commons Attribution 4.0* licence. (<https://creativecommons.org/licenses/by/4.0>)

The Australian Government acting through the Murray–Darling Basin Authority has exercised due care and skill in preparing and compiling the information and data in this publication. Notwithstanding, the Murray–Darling Basin Authority, its employees and advisers disclaim all liability, including liability for negligence and for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying upon any of the information or data in this publication to the maximum extent permitted by law.

The Murray–Darling Basin Authority's preference is that you attribute this publication (and any Murray–Darling Basin Authority material sourced from it) using the following wording within your work:

Cataloguing data

Title: Annual Progress Report 2020, Murray–Darling Basin Authority Canberra, 2020. CC BY 4.0

Accessibility

The Murray–Darling Basin Authority makes its documents and information available in accessible formats. On some occasions the highly technical nature of the document means that we cannot make some sections fully accessible. If you encounter accessibility problems or the document is in a format that you cannot access, please contact us.

Acknowledgement of the Traditional Owners of the Murray–Darling Basin

The Murray–Darling Basin Authority pays respect to the Traditional Owners and their Nations of the Murray–Darling Basin. We acknowledge their deep cultural, social, environmental, spiritual and economic connection to their lands and waters.

The guidance and support received from the Murray Lower Darling Rivers Indigenous Nations, the Northern Basin Aboriginal Nations and our many Traditional Owner friends and colleagues is very much valued and appreciated.

Aboriginal people should be aware that this publication may contain images, names or quotations of deceased persons.

Contents

- Executive Summary 2
- Background..... 4
- 1. Monitoring of SDLAM Project progress..... 5
 - 1.1 Supply projects 6
 - 1.2 Constraint Measures 13
 - 1.3 Efficiency Measures..... 17
- Appendix A – SDLAM projects map..... 19
- Appendix B – Project mapping 20
- Appendix C – Volume contribution methodology..... 22

Executive Summary

This is the Murray-Darling Basin Authority's (MDBA) second annual report on the progress of the Sustainable Diversion Limit (SDL) adjustment projects being implemented under the *Basin Plan 2012* (Cth) (Basin Plan). The Basin Plan's SDL adjustment mechanism allows the SDL to be adjusted up or down by up to 5% in response to projects that will allow Basin Plan outcomes to be achieved through more efficient water delivery and use. The mechanism provides opportunities to make both consumptive and environmental water use more efficient and as a result, adjust the amount of water that needs to be recovered for the environment.

In 2017, the Basin states¹ brought forward 36 SDL supply and constraint projects designed to improve the use and delivery of environmental water. The MDBA determined that, as a package, these 36 projects would deliver an SDL adjustment offset of 605 gigalitres (GL), meaning 605 GL less water would need to be recovered from consumptive users. The 5% limit on changing the SDL means that to realise the full 605 GL offset, at least 62 GL of water must also be recovered for the environment through efficiency projects. The Basin Plan was amended in 2017 to adopt a new SDL on the basis of the Basin state commitment to implement the projects. This amendment resulted in an overall water recovery target of 2,075 GL plus an additional 450 GL to be recovered through efficiency measures.

The SDL projects are collectively an ambitious program of work and the Basin Plan requires that all projects be implemented and operational by 30 June 2024. If they are not, or if there have been significant changes to the projects that would affect the yield, the MDBA must conduct a reconciliation and recalculate the adjustment amount. The MDBA therefore has an important role to play in monitoring and reporting on whether the projects are on track, assessing the likely implications of any project changes or delays, and being prepared to undertake a reconciliation if required.

In its 2019 annual progress report, the MDBA noted that while progress had been made, there was still a substantial amount of work to be done, that difficult policy and legislative issues were yet to be resolved and that completing all the projects by 2024 would be challenging.

A year later, it is clear that while there continues to be steady progress on the design and implementation of some projects, some significant projects are falling behind and are at high risk of not meeting the June 2024 deadline. In addition, there are significant stakeholder concerns associated with those 'at risk' projects which are contributing to significant and ongoing delays. These stakeholders' concerns relate to the effects and benefits the projects will have to local environmental outcomes relative to achieving broader Basin-wide objectives. Additionally, the authorising environment (Government support) in which the significant projects exist has modified over time with increased emphasis on community co-design.

¹ 'Basin states' refers to the governments of the Australian states and territory in the Murray-Darling Basin: Queensland, New South Wales, Victoria, South Australia, and the Australian Capital Territory. 'Basin governments' refers to the Basin states and the Australian Government.

As of March 2020, of the 36 supply and constraint projects:

- 16 projects have made good progress or are on track, being under construction, undertaking operational trials or in operation.
- 14 projects have made some progress with project design and implementation, however could experience potential delays due to stakeholder concerns or regulatory requirements.
- 6 projects are at significant risk of not being operational by June 2024.

Of particular concern is that the supply and constraint projects that are most at risk are complex projects that together make a substantial contribution to the overall sustainable diversion limit adjustment. While it is difficult to assess the volume that these projects contribute to the SDL reduction precisely, it is estimated that they collectively contribute at least 150 GL.

The MDBA acknowledges that some delays involve projects being redesigned and undergoing further community consultation, which may lead to better projects with improved local outcomes. While the MDBA is keen to see good projects implemented and best possible outcomes achieved, it remains unclear how possible project changes could impact on the offset amount. It is also worth noting that there have been no formal notifications of project changes to date.

For efficiency measures, as at December 2019, the Australian Government Department of Agriculture, Water and the Environment reports that the water efficiency program had recovered just 1.259 GL of water and contracted a further 0.638 GL. This means that the initial 62 GL target to allow the adjusted SDL to come into effect was not met by 1 July 2019. Given the small volume of water recovered so far, the additional socio-economic criteria introduced by the Murray-Darling Basin Ministerial Council (Ministerial Council), and the stated lack of support by some Basin governments for further recovery, it is unlikely the full amount of 450 GL will be achieved by 30 June 2024.

The risks to fully implementing critical supply and constraints projects, together with the slow progress in recovering water through efficiency projects, make it increasingly unlikely that the SDL adjustment program will be fully delivered by June 2024, putting the overall SDL adjustment at risk. As it stands, this means that the MDBA would have no choice but to run a reconciliation determination to recalculate the adjustment amount. Based on current indications, it is likely that such a reconciliation would lead to the need for additional water recovery.

The MDBA will continue to closely monitor the progress of SDL adjustment projects as we move towards 2024. This will include developing a more rigorous assurance process and examination of the likely impacts of project changes. If the MDBA considers that genuine progress is not being made, that projects will not be completed, or if there is formal notification of project changes, it may carry out an interim assessment of the likely impact on the adjustment amount, so that Basin governments are well informed of the likely outcome ahead of the June 2024 deadline.

Background

The Basin Plan was developed by the MDBA in consultation with the Basin states, and enacted by the Australian Parliament, to address the historic overallocation of water from the Murray–Darling Basin (Basin). The Basin Plan sets limits to the volume of water that can be taken from the Basin for towns, industry and farmers, while leaving enough water to sustain natural ecosystems and ensure a healthy working Basin. These limits are called the Sustainable Diversion Limits (SDLs). In order to bridge the gap between existing levels of water use and the new SDLs, the Australian government embarked on a program to recover water through a mixture of buying it directly from farmers and investing in water saving infrastructure.

To provide flexibility and achieve the best possible outcome for both communities and the environment, the Basin Plan includes an option to adjust the SDLs in response to projects that enable water to be used more efficiently. The mechanism requires a suite of projects to be implemented by Basin states and the Department of Agriculture, Water and the Environment by 30 June 2024, called the Sustainable Diversion Limit Adjustment Mechanism (SDLAM) projects.

In September 2017, the MDBA determined the SDL adjustment volume based on the package of 36 projects proposed by the Basin states to the Authority. In February 2018, this adjustment was adopted as an amendment to the Basin Plan by the Australian Government Minister responsible for water. Together these supply and constraints projects are aimed at achieving environmental Basin Plan outcomes with less water. If implemented as committed to by Basin states, the SDLAM projects are expected to provide the equivalent of 605 GL per year of water, reducing the quantity of water access rights the Australian Government will need to acquire.

The Basin Plan also provides for efficiency projects to adjust the SDL by recovering an additional 450 GL of water for the environment. These projects are administered by the Department of Agriculture, Water and the Environment.

As the regulator of the Basin Plan, the Authority is required by law to determine if the SDLAM projects have achieved the expected recovery of water by 30 June 2024, or if a new adjustment and water recovery volume are required. It is the MDBA's role to monitor compliance with SDLs and the implementation of SDLAM projects, as well as assess the operation and effectiveness of SDLAM projects. In addition, the MDBA will continue to monitor the ongoing implementation of the pre-requisite policy measures and the Basin governments associated improvement programs as the implementation of operational rules could affect the outcome of the final determination.

This progress report covers the period to 31 March 2020 and summarises the results of the MDBA's monitoring and review of progress, and is informed by publicly accessible information, such as media releases and newspaper articles, intergovernmental forums and Basin state progress reporting to the Department of Agriculture, Water and the Environment in line with their SDLAM funding agreements. The purpose of this report is to provide transparency about the progress of the implementation of SDLAM projects by the Basin states and the Australian Government.

1. Monitoring of SDLAM Project progress

There are three types of SDL adjustment projects:

- Supply projects – these are projects that are designed to manage the Basin’s rivers more efficiently so that less water is needed to achieve good environmental outcomes.
- Constraints measures – these projects aim to overcome some of the physical barriers and improve rules so that environmental water can be delivered more effectively.
- Efficiency measures – these projects make water use practices more efficient and as a result, water saved can be used for the environment.

In addition, the ongoing implementation of the pre-requisite policy measures (legislative and operational rule changes that improve the use and accounting of water for the environment) will also need to be considered in the final determination.

Progress monitoring process

This progress report covers the period to March 2020, and is informed by:

- Basin state government progress reporting to the Department of Agriculture, Water and the Environment in line with milestones set out in the Schedules to the Project Agreement for Stage 1 Funding for SDL Adjustment Supply and Constraints Measures in the Murray–Darling Basin (available on www.federalfinancialrelations.gov.au);
- Publicly available information, including Ministerial statements, State-based project information, state media releases and newspaper articles; and
- Information collected from teams within the MDBA and the Department of Agriculture, Water and the Environment who are familiar with the progress of specific projects.

The MDBA has used the above existing information available about the progress of each project to determine whether the projects are on track, have made good or some progress, require substantial work ahead, at risk of delay, or is at high risk of not being completed or operated as intended by 30 June 2024. Where relevant, some projects have been grouped and assessed together for clarity (Refer to [Appendices A and B](#) for the project mapping).

The MDBA has also made an assessment of the relative contribution of the projects, or groups of projects to the overall 605 GL SDL adjustment. The SDL adjustment was modelled based on the interaction of each of the projects, or groups of projects with each other. As such, individual contributions cannot be identified. The relative contributions of projects are broken down as follows:

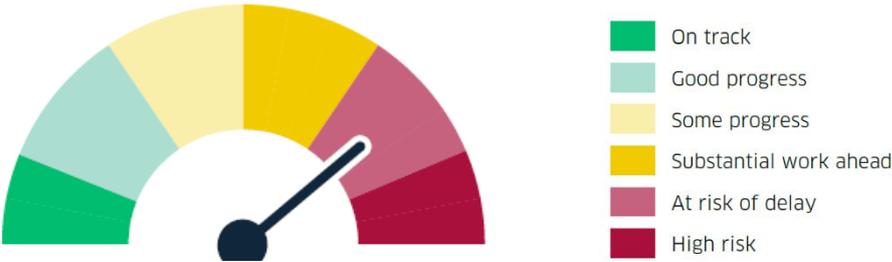
- Low: less than 10 GL
- Medium: between 11 and 29 GL
- High: over 30 GL

The methodology used to estimate the volume contribution range is attached at [Appendix C](#).

The MDBA will continue to closely monitor the progress of SDLAM projects towards the 2024 deliverable timeframe. In addition, the ongoing implementation of the pre-requisite policy measures (legislative and operational rule changes that improve the use and accounting of water for the environment) will also need to be considered in the final determination.

Basin Governments were given an opportunity to review this report, prior to its release.

Table 1 SDLAM progress classification



1.1 Supply projects

Supply projects improve ways to manage the Basin’s rivers to more efficiently deliver water for the environment. Projects are broadly divided into two categories – on ground environmental works such as regulators that will help water environmental areas more efficiently; and changes to river operating rules that will allow enhanced delivery of environmental water – both aimed at being able to achieve equivalent environmental outcomes with less water.

To 30 March 2020, steady progress has been made on many supply projects, with many being under construction, undertaking operational trials or in operation. However, the funding arrangements for the Enhanced Environmental Water Delivery (EEWD, also known as hydro cues) project are not yet settled; and the structural and operational changes at Menindee Lakes project have been slow to progress due to a combination of stakeholder concerns and the complexities involved in establishing program frameworks and governance systems and processes. As a result, these projects are at clear risk of not being delivered by June 2024. This is of particular concern as these two projects make a significant contribution to the SDL offset.

Environmental Works

A summary of the environmental works projects and the MDBA’s current assessment of progress towards their completion is outlined in Table 1 below.

Table 1

Project	Project Description	Project progress	Classification	Contribution to the offset (605 GL)
Victorian Murray	Nine individual environmental	Victorian Murray Floodplain projects are	Some progress	High

Project	Project Description	Project progress	Classification	Contribution to the offset (605 GL)
Floodplain Restoration Project	works projects that aim to return a more natural inundation regime to several high-ecological value Murray River floodplain sites in Victoria.	currently in the design phase. At this time the MDBA is satisfied that these projects are being progressed adequately, and that the amount of time still available (over 4 years) represents sufficient time for these projects to finalise designs, secure approvals, complete construction and enter operation. However, there is still potential for administrative and regulatory delays as approvals are not yet secured		
The Living Murray (TLM) environmental works and measures	Six individual environmental works projects that aim to return a more natural inundation regime to a few high-ecological-value Murray River floodplain sites in New South Wales, Victoria and South Australia.	The TLM projects have been constructed, with most projects entering operation. Where operations are not fully underway, work is being progressed to resolve final issues. Nevertheless, the Koondrook-Perricoota TLM works is at risk due several constraints-related issues (both upstream and downstream of the forest) that are preventing the TLM works from being operated in a manner consistent with how the project was proposed at the time of the SDLAM Determination. These issues are linked with resolving the broader constraints measures issues in the River Murray, which are discussed under 2.2 Constraints Measures.	Good progress	High

Project	Project Description	Project progress	Classification	Contribution to the offset (605 GL)
South Australian floodplain projects	Three individual environmental works projects that aim to return a more natural inundation regime to a few high-ecological value Murray River floodplain sites in South Australia. In addition,	The South Australian floodplain projects have been largely constructed. Basin governments and the MDBA, are working on final issues around what must be done to determine that projects are formally 'complete.' The MDBA is satisfied this is achievable by June 2024.	Good progress	Low
Flows for the Future	The project aims to reinstate more natural flow patterns in the Eastern Mount Lofty Ranges by reducing the interception of low-flow events, providing additional water to River Murray, Coorong, Lower Lakes and Murray Mouth.	This project has largely been constructed. Basin governments and the MDBA, are working on final issues around what must be done to determine that projects are formally 'complete.' The MDBA is satisfied this is achievable by June 2024.	Good progress	Low
Modernising supply systems for effluent creeks in the Murrumbidgee, including Yanco Creek	Two individual projects that aim to modernise water delivery infrastructure in Yanco Creek to improve the operation of Yanco Creek and its environmental outcomes.	NSW is progressing this work consistent with their funding agreements and technical and stakeholder engagement activities have commenced, although there have been some delays. The MDBA notes that these projects are complex, and that there exists within the local community a high level of concern about their implementation. Failure to resolve community concerns could lead to ongoing delays.	Some progress	Medium

Project	Project Description	Project progress	Classification	Contribution to the offset (605 GL)
Murray and Murrumbidgee national parks supply measures	This project involves works and other measures across two locations (Yanga National Park and the Millewa Forest) that aim to improve and enhance the movement of environmental flows in national parks on the Murrumbidgee and the Murray.	The Murray and Murrumbidgee national parks supply measures are progressing. To date, NSW have establishing program governance controls, reporting and stakeholder engagement framework for these projects.	Some progress	Low
Nimmie-Caira infrastructure modifications	A project that involves converting former flood irrigation works to environmental water delivery infrastructure to improve environmental outcomes on the Nimmie-Caira floodplain and other parts of the Lowbidgee.	The Nimmie-Caira project has been constructed. Basin governments and the MDBA, are working on final issues around what must be done to determine that projects are formally 'complete.' The MDBA is satisfied this is achievable by June 2024.	On track	Medium

Changes to river operating rules

A summary of the operational rule changes projects and the MDBA's current assessment of progress towards their completion is outlined in Table 2 below.

Table 2

Project	Project Description	Project Progress	Classification	Contribution to the offset (605 GL)
Hume Dam rule changes	<p>Two individual projects that involve:</p> <ul style="list-style-type: none"> improving the flexibility of rules that set the rate of fall in river level downstream of Hume Dam. recognising efficiencies achieved through adaptive management of the Hume Dam airspace and pre-release protocols. 	The two Hume Dam rule changes are both in effect and operating. Basin governments and the MDBA, are working on final issues around what must be done to formalise these rules. The MDBA is satisfied this is achievable by June 2024.	Good Progress	High
Snowy water licence Schedule 4 amendments for River Murray increased flow provisions	A project that aims to allow environmental water recovered by the River Murray Increased Flows (RMIF) to be held and released at the request of environmental water holders.	Entitlement and governance frameworks required to enable this project are yet to be finalised.	Some progress	High
Barmah-Millewa Forest environmental water allocation	A rule change project that aims to update the rules that govern use of the environmental water in the	This project is in effect and operational. Formal completion relies on accreditation of the NSW River Murray Water Sharing Plan which is	Good progress	High

Project	Project Description	Project Progress	Classification	Contribution to the offset (605 GL)
	Barmah-Millewa Forest Environmental Watering Account.	anticipated later in 2020. The MDBA is satisfied this project will be classified as 'complete' by 30 June 2024.		
Murrumbidgee Computer Aided River Management (CARM)	A project that aims to develop and implement a computerised river management system in the Murrumbidgee.	Murrumbidgee CARM project is operating, but still requires amendments to the Murrumbidgee Water Sharing Plan to be made before it can be considered complete. These amendments are currently being delayed, pending completion of the Yanco Creek environmental works, as these also require Water Sharing Plan amendments. At this stage the MDBA is satisfied with the progress of the CARM project, however as noted there are complexity of the Yanco Creek projects which may impact the delivery of this project.	Good progress	Medium
Enhanced Environmental Water Delivery (EEWD - previously known as hydro cues)	A project that aims to update rules and governance arrangements in the Murray to allow environmental water holders to synchronise releases with natural flows and improve environmental outcomes.	The EEWD project is an extremely complex project and is currently without a Stage 1 funding agreement with the Commonwealth (at 31 March 2020). Ongoing delays in finalising agreements may risk delivery of the project by June 2024.	At risk of delay	High
SDL offsets in the NSW Lower Murray (also known as Lock)	A project that aims to update infrastructure and changes operating	Progress has been made with program governance controls, processes and systems, and reporting and	Good progress	Medium

Project	Project Description	Project Progress	Classification	Contribution to the offset (605 GL)
8 and 8 weir pool manipulation)	rules to allow for greater variability in weir pool levels to achieve improved environmental outcomes.	stakeholder engagement frameworks close to finalisation (at 31 March 2020).		
Menindee Lakes Water Saving Project (including consideration of constraints in the Lower Darling key focus area)	A project that aims to update infrastructure and change operational and legislative rules to improve the efficiency of the Menindee Lakes system.	This is an extremely complex project with significant stakeholder concerns. As of 31 March 2020, this project is on track as per the funding agreement milestones, however stakeholder concerns and statements made in the SDLAM Technical Workshop in March 2020 ² indicate that this project may need to be significantly modified from the original business case. These modifications may lead to significant delays and could alter the contribution to the SDL offset.	High risk	High

² SDLAM Technical Workshop Communique

1.2 Constraint Measures

Constraints projects aim to overcome some of the barriers that limit the delivery of environmental water in the system. Constraints projects can include changes to physical features such as river crossings and bridges that act to limit the volume of water that can be delivered without impacting on third parties. They can also include changes to river operating practices and rules will allow water managers more flexibility in releasing and moving environmental water through the system. Constraints projects are extremely complex, requiring significant stakeholder engagement to ensure successful implementation. The MDBA notes, that while all projects are technically feasible, due to the complexities of the authorising environment, particularly in relation to stakeholder concerns and third-party impacts, the constraints projects are at significant risk of not being delivered by 30 June 2024 or potentially, not being delivered at all.

In addition, the delivery of constraints and the Enhanced Environmental Water Delivery (EEWD) projects are vital for the effective operation of supply projects. Due to these interdependencies, any holdups or substantial changes to the delivery of the constraints and EEWD projects will have significant impacts on the outcome of those projects.

The Victorian and NSW governments commissioned an independent analysis of constraints modelling and presented the report to the Ministerial Council in December 2019. This review has delayed progression of the NSW and Victorian constraints projects. Moreover, the community co-design process means the projects' design and approvals stage (stage one) is not expected to conclude until 2023, leaving insufficient time for the delivery of infrastructure works (stage two) prior to the June 2024 implementation timeframe

A summary of the constraints measure projects and the MDBA's current review of progress towards their completion is outlined in Table 3 below.

Table 3

Project	Project Description	Project progress	Classification	Contribution to the offset (605 GL)
New South Wales and Victorian Murray constraints	Aims to ease River Murray constraints in the following key focus areas: <ul style="list-style-type: none"> Hume to Yarrawonga (targeting flows of 40,000 ML/day at Doctor's Point), and 	At March 2020, these constraints project proposals are still subject to negotiation and development between the project proponents and the Department of Agriculture, Water and the Environment. Some governance framework and project planning and technical work has occurred in each State.	High risk	High

	<ul style="list-style-type: none"> • Yarrawonga to Wakool (targeting flows of 30,000 – 50,000 ML/day (d/s of Yarrawonga Weir). 	<p>These projects are extremely complex, requiring significant stakeholder engagement to ensure smooth implementation. The projects are experiencing continual delays and are at risk of not being completed by 30 June 2024. The basis of this includes:</p> <ul style="list-style-type: none"> • The NSW/VIC review of the constraints modelling, which was presented to Ministerial Council in December 2019, has caused further delays to the beginning of stakeholder engagement. • Victoria has in place a broad SDLAM governance and project management arrangement. However, the extensive co-design process proposed by Victoria means that landholder negotiation on relaxing constraints in specific areas is not likely to conclude before 2023, leaving insufficient time for any infrastructure works and measures to be implemented by 30 June 2024. • Likewise, NSW, whilst, developing their program governance controls, technical options analysis and frameworks for the constraints measures projects, have aligned with Victoria on the delayed roll out of a 	
--	---	--	--

		community co-design processes. This raises concerns that the delays will make constraint relaxation unlikely to occur by 30 June 2024.		
South Australian Murray constraints	Aims to ease River Murray constraints downstream of the South Australian border (targeting flows of 80,000 ML/day at the border).	The South Australian Murray constraints project is progressing according to its Murray River key focus area constraints project plan. The MDBA is currently satisfied that they are on track to complete their work by 30 June 2024. However, the interdependencies with other constraints projects put the outcomes of this project at risk.	Some progress	High
Murrumbidgee constraints	Aims to ease constraints on the Murrumbidgee River (targeting flows of 40,000 – 44,000 ML/day at Wagga Wagga).	The Murrumbidgee constraints project is progressing slowly. Stakeholder engagement framework has been drafted and the governance arrangements surrounding the project are being developed. NSW is aligning this project with their approach to the Murray constraints projects, leading to similar concern that with stakeholder consultation not completed until 2023, there will be insufficient time to complete the project by June 2024.	High risk	High
Lower Darling constraints	Aims to ease constraints on the Lower Darling River. The project is integral to the Menindee Lakes	NSW has commenced stakeholder engagement, interagency and interjurisdictional engagement and project planning.	High risk	High

	Water savings supply measure and will link to that project's milestone.	The complexity of the Menindee project means that the constraints measures component may be held up in the issues of the broader project.		
Goulburn constraints	Aims to ease constraints on the lower Goulburn River (targeting 17,000 – 20,000 ML/day at Shepparton).	As of March 2020, a draft project proposal submitted by Victoria to the Department of Agriculture, Water and the Environment was still under development. With the continued delay of this project, the MDBA believes there is a risk of the project not being delivered by June 2024.	High risk	Not modelled as part of the 605 GL SDL adjustment

1.3 Efficiency Measures

Efficiency projects are activities that change water use practices and thereby save water for the environment. They include irrigation infrastructure upgrades both on-and off-farm, metering, efficiency measures achieved within urban or industrial and mining areas and other water use efficiencies. Water saved through efficiency projects will become part of the Commonwealth environmental water holdings.

The Basin Plan provides for efficiency projects to adjust the SDL by recovering an additional 450 GL of water for the environment. At least 62 GL must be recovered through Efficiency Measures to enable the full 605 GL supply offset to take effect, (605 GL supply offset minus five per cent limit of 543 GL).

Efficiency Measures projects are required to have neutral or improved socio-economic impacts on Basin communities and industries. In 2018, the Ministerial Council agreed to additional socio-economic criteria for assessing projects. While the additional criteria are designed to provide assurance to stakeholders that the socio-economic impacts of efficiency measures projects are considered appropriately, they have made it more difficult for projects to meet the neutrality test.

In July 2019, the Australian Government Department of Agriculture, Water and the Environment launched the Water Efficiency Program to progress the recovery of the additional 450 GL of environmental water, in accordance with the additional socio-economic criteria. The program is available in all Basin states and includes urban, industrial, off-farm, metering and on-farm projects.

As at December 2019, only 1.259 GL had been recovered and 0.638 GL contracted through Efficiency Measures projects. Given the small volume of water recovered so far, the additional socio-economic criteria, and the lack of support by some Basin governments, it is difficult to see how the full amount of 450 GL per year will be achieved.

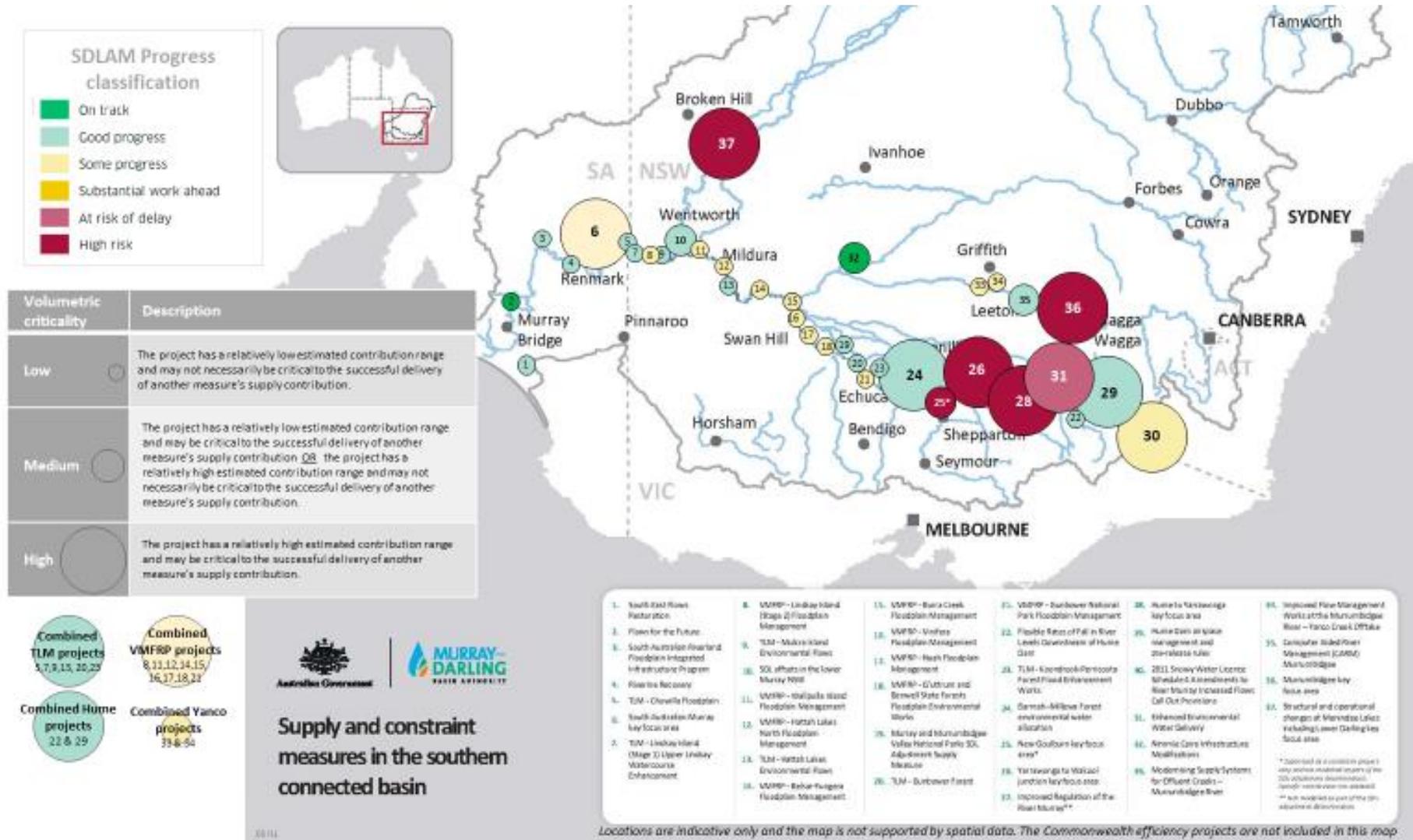
An overview of the program progress and the MDBA's current assessment of progress towards their completion is outlined in Table 3Table 4 below.

Table 4

Project	Project Description	Project progress	Classification
Efficiency measures projects	Aim to recover 450 GL of water for the environment through improving water use efficiency.	As at 31 December 2019 recovery via efficiency measures programs stands at 1.259 GL recovered, 0.638 GL contracted	High risk

Project	Project Description	Project progress	Classification
		<p>(but not yet delivered)³. This water was recovered through the Commonwealth On-Farm Further Irrigation Efficiency Program Pilot in South Australia. Both of these projects are in the South Australian River Murray.</p> <p>Under the Australian Government Water Efficiency Program, agreements have been entered with four Delivery Partners. As of April 2020, two projects, through one delivery partner, have progressed to implementation.</p> <p>NSW, SA, and the ACT have entered into agreements with the Commonwealth to undertake studies to bring forward state-led water efficiency projects. The Department of Agriculture, Water and the Environment continues to work with Victoria to progress projects identified in Victoria’s Northern Water Infrastructure Prospectus. As per the commitment at the Ministerial Council on 8 June 2018, the water recovered from these potential state-led projects will contribute towards the initial 62 GL.</p> <p>Also, of note is the Independent review of the Water for the Environment Special Account (WESA), which is currently being considered by the Federal Minister for Resources, Water and Northern Australia. The statutory review considered whether the funds in the WESA are sufficient to recover the full 450 GL and ease or remove constraints by 30 June 2024. Irrespective of the outcomes of the WESA Review, based on the small volume of water recovered so far, the additional socio-economic criteria, and a reluctance by some Basin States to fully commit to the program, it is unlikely that recovery of the full 450 GL through efficiency measures will be achieved by 30 June 2024.</p>	

Appendix A – SDLAM projects map



Appendix B – Project mapping

SDLAM Classification	Project title
Supply – Environmental works	
Victorian Murray Floodplain Restoration Project	Belsar–Yungera floodplain management project
	Burra Creek floodplain management proposal
	Gunbower national park floodplain management project
	Guttrum and Benwell State forests floodplain environmental works project
	Hattah Lakes North floodplain management project
	Lindsay Island (Stage 2) floodplain management project
	Nyah floodplain management project
	Vinifera floodplain management project
	Wallpolla Island floodplain management project
The Living Murray (TLM) environmental works and measures	Chowilla Floodplain (TLM) project
	Gunbower Forest (TLM) project
	Hattah Lakes environmental flows (TLM) project
	Lindsay Island (Stage 1) Upper Lindsay (TLM) watercourse enhancement project
	Mulcra Island environmental (TLM) flows project
	Koondrook–Perricoota Forest flood enhancement proposal (TLM) - environmental works and measures
South Australian floodplain projects	South East Flows Restoration Project
	Riverine recovery project
	South Australian Riverland Floodplain Integrated Infrastructure Program (SARFIIP)
Flows for the Future	Eastern Mount Lofty Ranges Flows for the Future Project
Modernising supply systems for effluent creeks in the Murrumbidgee, including Yanco Creek	Modernising supply systems for effluent creeks - Murrumbidgee River
	Improved flow management works at the Murrumbidgee River – Yanco Creek offtake
Murray and Murrumbidgee national parks supply measures	Murray Valley and Murrumbidgee Valley national parks SDL adjustment supply measure
Nimmie-Caira infrastructure modifications	Nimmie Caira infrastructure modifications proposals
Supply - Changes to river operating rules and system enhancements	
Hume Dam rule changes	Flexible rates of fall in river levels downstream of Hume Dam
	Hume Dam airspace management and pre-release rules
Snowy water licence schedule 4 amendments for River Murray increased flow provisions	
Barmah-Millewa Forest environmental water allocation	
Murrumbidgee Computer Aided River Management (CARM)	
Enhanced Environmental Water Delivery (EEWD - also known as hydro cues)	
SDL offsets in the NSW Lower Murray (also known as Locks 8 and 9 weir pool manipulation)	
Menindee Lakes Water Savings project (which includes the Lower Darling constraints key focus area)	
Constraint Measures	
New South Wales and Victorian Murray constraints	Hume to Yarrawonga key focus area
	Yarrawonga to Wakool junction key focus area

SDLAM Classification	Project title
South Australian Murray constraints	South Australian Murray key focus area
Murrumbidgee constraints	Murrumbidgee key focus area
Lower Darling constraints	Lower Darling key focus area
Goulburn constraints	New Goulburn key focus area*
Efficiency Measures	
Efficiency measures projects	Urban or industrial and mining areas water efficiency
	On farm irrigation efficiency and other water use efficiencies
Pre-requisite Policy Measures	
River Murray Joint Venture pre-requisite policy measures	
New South Wales pre-requisite policy measures	
Victorian pre-requisite policy measures	

Appendix C – Volume contribution methodology

Estimated contributions of individual supply measures projects

Purpose

To provide an informed qualitative estimate of the relative contribution and therefore criticality of individual projects that comprise the package of SDLAM supply measures.

Introduction

SDLAM supply measures must be considered as a package of projects for the purposes of determining a supply contribution as part of the SDL adjustment process.

However, to assist in understanding the features of individual projects, an exercise was undertaken to estimate the criticality of individual SDLAM supply measures. Criticality was considered with respect to volumetric contribution to the SDLAM offset and ecological factors.

Whilst care has been applied in making the volumetric contribution estimates the following limitations to this approach should be noted:

- **There is significant uncertainty associated with project level estimates (hence the range provided) as the SDLAM was modelled as a package and the interaction between projects ultimately affects the volumetric contribution of the overall SDLAM program.**
- **The volumetric contribution is not binding for the purpose of reconciliation and cannot be relied on to make estimates of potential shortfall associated with the failure to deliver a single, or group of projects.**
- **The volumetric contribution for each project is an estimate only and may be an under or overestimate.**

These caveats are important and must be retained within this report and any subsequent presentation of any information included in this report.

Volumetric Criticality – Considers an individual project’s estimated supply contribution to the 605 GL offset volume and whether the project is critical in giving effect to the supply contributions associated with other projects. It is a qualitative assessment based on the estimated contribution ranges and the potential interrelation of the project with other projects.

Volumetric criticality	Description
Low	The project has a relatively low estimated contribution range and may not necessarily be critical to the successful delivery of another measure’s supply contribution
Medium	The project has a relatively low estimated contribution range but may be critical to the successful delivery of another measure’s supply contribution <u>OR</u> The project has a relatively high estimated contribution range but may not necessarily be critical to the successful delivery of another measure’s supply contribution
High	The project has a relatively high estimated contribution range <u>and</u> may be critical to the successful delivery of another measure’s supply contribution

Ecological Criticality – Sites targeted under the SDLAM program are generally considered to be of high ecological value. Therefore, to consider the degree of ecological criticality for a given project the geographical extents of the effects of the project were considered. Consideration is based on a qualitative assessment regarding whether a project will have ecological impacts at a local, reach or whole of system scale.

Extent of ecological criticality	Description
Local scale	The project delivers local scale ecological benefits
Reach scale	The project delivers reach scale ecological benefits
System scale	The project delivers whole of system scale ecological benefits

Findings

Findings are summarised in Table 5 and include the relative volumetric and ecological criticalities as well as the estimated contribution ranges for supply measures projects/programs.

Table 5: SDLAM supply measure project criticality

Measure	Volumetric criticality	Extent of ecological criticality	Estimated contribution range (GL)
The Living Murray Program (TLM) (entire program = 6 projects)	High	System scale	136 – 150
Victorian Murray Floodplain Restoration Projects (VMFRP) (entire program = 9 projects)	High	Local scale	53 – 73
Constraints Measures Program (constraints as supply = 4 projects)	High	System scale	70 – 83
South East Flows Restoration Project	Low	Local scale	0 – 25
Hume Dam airspace management and pre-release rules	High	System scale	25 – 70
Flexible Rates of Fall in River Levels Downstream of Hume Dam	Low	Reach scale	0 – 25
Barmah-Millewa Forest Environmental Water Allocation	High	Reach scale	25 – 40
SDL offsets on the Lower Murray	Medium	Reach scale	0 – 35
Menindee Lakes Water Savings Project (including Lower Darling key focus area)	High	System scale	71 – 106
2011 Snowy Water Licence Schedule 4 Amendments to River Murray Increased Flows (RMIF)	High	Reach scale	7 – 45
Improved Flow Management Works at the Murrumbidgee River - Yanco Creek	Low	Local scale	7 – 13
Modernising Supply Systems for Effluent Creeks - Murrumbidgee River	Low	Local scale	7 – 16
Riverine Recovery Project	Low	Local scale	2 – 8
SA Riverland Floodplain Integrated Infrastructure Program (SARFIIP)	Low	Local scale	0 – 5
Flows for the Future	Low	Local scale	0 – 5
Enhanced Environmental Water Delivery (EEWD)	High	System scale	0 – 42
Computer Aided River Management (CARM) Murrumbidgee	Medium	Reach scale	16 – 21
Nimmie-Caira Infrastructure Modifications Proposal	Medium	Local scale	20 – 35
Murray and Murrumbidgee Valley National Parks SDL Adjustment Supply Measure	Low	Local scale	7 – 21

Background

Process overview

Volumetric contribution estimates for supply measure projects/programs were made using two distinct approaches, Method A and Method B.

Method A estimates were directly extracted from existing sources available on the MDBA internal record management system. For further detail, see table 3, below.

Method B estimates were made by calculating the average contribution per project made to sub-packages of projects modelled during the SDLAM determination process for which an overall supply contribution was established. For example, the *Interim advice table* (Murray–Darling Basin Authority, 2017a) states the 10 pack of projects, modelled in June 2015, contributes >250 GL, therefore, each of the 10 projects are estimated to contribute 25 GL.

Information obtained in Methods A and B were then used to develop an estimated range of potential supply contributions for supply measures projects/programs. Where data gaps existed, i.e. no information could be found for a project using Method A, or where Method A and B values were equal, a range was obtained by assuming $\pm 100\%$ of the value found in Method B. This was required for the following projects:

- SDL offsets on the Lower Murray (17.5 GL = 0 to 35 GL)
- SA Riverland Floodplain Integrated Infrastructure program (2.5 GL = 0 to 5 GL)
- Flows for the Future (2.5 GL = 0 to 5 GL)
- Enhanced Environmental Water Delivery (20.6 GL = 0 to 41.2 GL)

Method A, Method B and estimated contribution ranges are summarised at Table 6: Summary of supply contribution estimates by SDLAM supply measure project.

Table 6: Summary of supply contribution estimates by SDLAM supply measure projects

Supply Measure	Method A (GL)	Method B (GL)	Estimated contribution range (GL)
The Living Murray Program (TLM) ¹	136.0	150.0	136 – 150
Victorian Murray Floodplain Restoration Projects (VMFRP) ²	53.0	72.5	53 – 73
Constraints Measures Program ³	70.0	82.4	70 – 83
South East Flows Restoration Project	0.0	25.0	0 – 25
Hume Dam airspace management and pre- release rules	70.0	25.0	25 – 70
Flexible Rates of Fall in River Levels Downstream of Hume Dam	0.0	25.0	0 – 25
Barmah-Millewa Forest Environmental Water Allocation	40.0	25.0	25 – 40
SDL offsets on the Lower Murray ⁴		17.5	0 – 35
Menindee Lakes Water Savings Project (including Lower Darling key focus area)	106.0	70.6	71 – 106
2011 Snowy Water Licence Schedule 4 Amendments to River Murray Increased Flows (RMIF)	45.0	7.5	7 – 45
Improved Flow Management Works at the Murrumbidgee River - Yanco Creek	12.5	7.5	7 – 13
Modernising Supply Systems for Effluent Creeks - Murrumbidgee River ⁴	16.0	7.5	7 – 16
Riverine Recovery Project	7.2	2.5	2 – 8
SA Riverland Floodplain Integrated Infrastructure Program (SARFIIP) ⁴		2.5	0 – 5
Flows for the Future ⁴		2.5	0 – 5
Enhanced Environmental Water Delivery (EEWD) ⁴		20.6	0 – 42
Computer Aided River Management (CARM) Murrumbidgee	16.0	20.6	16 – 21
Nimmie-Caira Infrastructure Modifications Proposal	35.0	20.6	20 – 35
Murray and Murrumbidgee Valley National Parks SDL Adjustment Supply Measure	7.5	20.6	7 – 21
TOTAL:	614	605	446 – 818

Notes:

¹ The combined estimated contribution for the TLM program, comprised 6 supply measures projects.

² The combined estimated contribution for the VMFRP program, comprised 9 supply measures projects.

³ The combined estimated contribution for the Constraints measures program, comprised 4 supply measures projects.

⁴ Estimated contribution range is $\pm 100\%$ of the Method B value

Where a volumetric range was identified in Method A the mid-point of the range is included in Table 2.

Empty cells represent a gap in data

Method A – Specific supply contribution estimates based on existing information

Method A involved examining existing sources that advised on supply contribution estimates and capturing relevant information. This is presented below in Table 7. Note that gaps remain where a specific source was not able to be found to estimate a given project's contribution.

Table 7: Estimated supply contributions by project for Method A

Measure	Estimated Supply Contribution (GL)	Source	Notes
The Living Murray Program	136	Martin & Turner, 2015	"Plausible supply contribution", Package of 6 projects
Victorian Murray Floodplain Restoration Project	53	Murray–Darling Basin Authority, 2015	Includes the 9 Victoria floodplain projects
Hume to Yarrawonga key focus area ¹	10 to 20	Martin & Turner, 2015	"Plausible supply contribution"
Murrumbidgee key focus area ¹	10 to 20	Martin & Turner, 2015	"Plausible supply contribution"
SA Murray key focus area ¹			
Yarrawonga to Wakool junction key focus area ¹	30 to 50	Martin & Turner, 2015	"Plausible supply contribution"
South East Flows Restoration Project	0	Martin & Turner, 2015	"Assists maintenance of the limits of change to support overall supply contribution"
Hume Dam airspace management and pre- release rules	70	Martin & Turner, 2015	"Plausible supply contribution"
Flexible Rates of Fall in River Levels Downstream of Hume Dam	0	Martin & Turner, 2015	"Plausible supply contribution"
Barmah-Millewa Forest Environmental Water Allocation	40	Martin & Turner, 2015	"Plausible supply contribution"
SDL offsets on the Lower Murray			

Menindee Lakes Water Savings Project (including Lower Darling key focus area)	106	Murray–Darling Basin Authority, 2017b	“the project can allow a long-term average of 106 GL/y to be extracted”
2011 Snowy Water Licence Schedule 4 Amendments to River Murray Increased Flows (RMIF)	30 to 60	Martin & Turner, 2015	"Plausible supply contribution"
Improved Flow Management Works at the Murrumbidgee River - Yanco Creek	10 to 15	Martin & Turner, 2015	"Plausible supply contribution"
Modernising Supply Systems for Effluent Creeks - Murrumbidgee River ²	16	Lee, 2017	“the two projects can yield a long-term average of 16 GL/yr for Murrumbidgee environmental water and another 16 GL/yr for the Murrumbidgee IVT account.”
Riverine Recovery Project	7.2	Murray–Darling Basin Authority, 2017c	“adjustment volume includes the water savings of 7.2 GL by the Riverine Recovery Project”
SA Riverland Floodplain Integrated Infrastructure Program (SARFIIP)			
Flows for the Future			
Enhanced Environmental Water Delivery (EEWD)			
Computer Aided River Management (CARM) Murrumbidgee ²	16	Lee, 2017	“the two projects can yield a long term average of 16 GL/yr for Murrumbidgee environmental water and another 16 GL/yr for the Murrumbidgee IVT account.”
Nimmie-Caira Infrastructure Modifications Proposal	20 to 50	Martin & Turner, 2015	"Plausible supply contribution"
Murray and Murrumbidgee Valley National Parks SDL Adjustment Supply Measure	5 to 10	Martin & Turner, 2015	"Plausible supply contribution"

Notes

- Empty cells represent a gap in data
- ¹ Constraints Measures Program supply projects
- ² CARM and Effluent creeks projects are estimated to contribute a total 32 GL, have therefore assume 16 GL for each of the projects

Method B – Specific supply contribution estimates based on averages

Method B uses a simple average calculation to estimate supply contributions based on the series of packages of model runs included in the *Interim advice table* at Figure 1. The method involved two steps:

1. The contribution value of a specific pack of model runs was found.
2. The contribution value found at step 1 was divided by the number of projects included in the model run pack.

Calculations were based on the information included in the table below (N.B. the Trinity Pack was not considered)

Figure 1: Interim advice table (Murray–Darling Basin Authority, 2017a)

MDBA Interim Advice		
	10 pack > 250 GL (Jun 2015)	
1	Chowilla TLM	
2	Gunbower TLM	
3	Hattah TLM	
4	Lindsay Island TLM	
5	Mulcra TLM	
6	KPF TLM	
7	South East Flows	
8	Hume Dam Airspace	
9	Flexible rates (Hume Dam)	
10	BMFEWA	
	14 pack - 320 GL (Nov 2015)	
11	Gunbower	
12	Lindsay Island (St 2)	
13	Wallpolla	
14	SDL offsets in the Lower Murray	
	15 pack - 370 GL (Feb 2016)	
15	Menindee Lakes (run 35) (incl Lower Darling)	
	19 pack - 400 GL (Sep 2016)	
16	RMIF	
17	Guttrum and Benwell	
18	Yanco offtake	
19	Effluent Creeks	
	27 pack (Apr 2017)	Qualitative Advice
20	Belsar - Yungera	Trinity Pack (Mar 2017)
21	Burra	19 pack + Hydro Cues
22	RRP	+ Enhanced Menindee option
23	Hattah North	+ IRRM
24	Nyah	
25	Vinifera	
26	SARFIIP	
27	Flows for the future (maybe)	
	Remaining Measures (June 2017)	
28	Hydro cues	
29	Enhanced Menindee (incl Lower Darling)	
30	IRRM	
31	CARM	
32	Nimmie-Caira	
33	Yanga and Millewa (N.P.s)	
34	Constraints as supply - Goulburn	
35	Constraints as supply - Hume to Yarrawonga	
36	Constraints as supply - Murrumbidgee	
37	Constraints as supply - South Australian Murray	
38	Constraints as supply - Yarrawonga to Wakool	

Table 8: Estimated supply contributions by project for Method B

Measure		Averaged estimated supply contribution (GL)	Notes
10 pack > 250 GL (June 2015)			
1	Chowilla Floodplain TLM Project ²	25	
2	Gunbower Forest TLM Project ²	25	
3	Hattah Lakes Environmental Flows TLM Project ²	25	
4	Lindsay Island (Stage 1) Upper Lindsay watercourse Enhancement TLM Project ²	25	
5	Mulcra Island Environmental Flows TLM Project ²	25	
6	TLM environmental works and measures - Koondrook-Perricoota (KP) Forest Flood Enhancement proposal ²	25	
7	South East Flows Restoration Project (SEFRP)	25	
8	Hume Dam airspace management and pre- release rules	25	
9	Flexible Rates of Fall in River Levels Downstream of Hume Dam	25	
10	Barmah- Millewa Forest Environmental Water Allocation	25	
14 pack - 320 GL (November 2015)			
11	Gunbower National Park Floodplain Management Project ³	17.5	
12	Lindsay Island (Stage 2) Floodplain Management Project ³	17.5	
13	Wallpolla Island Floodplain Management Project ³	17.5	
14	SDL offsets in the Lower Murray NSW	17.5	
15 pack - 370 GL (February 2016)			
15	Menindee Lakes ¹	50	
19 pack - 400 GL (September 2016)			
16	2011 Snowy Water Licence Schedule 4 Amendments to River Murray Increased Flows (RMIF)	7.5	
17	Guttrum and Benwell State Forests Floodplain Environmental Works Project ³	7.5	
18	Improved Flow Management Works at the Murrumbidgee River - Yanco Creek Offtake	7.5	
19	Modernising Supply Systems for Effluent Creeks – Murrumbidgee River	7.5	
27 pack – 420 GL (April 2017)⁵			
20	Belsar-Yungera Floodplain Management Project ³	2.5	
21	Burra Creek Floodplain Management Proposal ³	2.5	
22	Riverine Recovery Project (RRP)	2.5	

23	Hattah Lakes North Floodplain Management Project ³	2.5	
24	Nyah Floodplain Management Project ³	2.5	
25	Vinifera Floodplain Management Project ³	2.5	
26	SA Riverland Floodplain Integrated Infrastructure Program (SARFIIP)	2.5	
27	Flows for the Future (F4F)	2.5	
Remaining Measures – 605 GL (June 2017)			
28	Enhanced environmental water delivery (EEWD)	20.6	
29	Enhanced Menindee including Lower Darling ¹	20.6	
30	Computer Aided River Management (CARM) Murrumbidgee	20.6	
31	Nimmie Caira Infrastructure Modifications Proposal	20.6	
32	Murray and Murrumbidgee Valley National Parks SDL Adjustment Supply Measure	20.6	
33	Hume to Yarrawonga key focus area ⁴	20.6	
34	Murrumbidgee key focus area ⁴	20.6	
35	South Australian Murray key focus area ⁴	20.6	
36	Yarrawonga to Wakool junction key focus area ⁴	20.6	

Notes:

¹ Menindee – 70.6 GL

² The Living Murray Program – 150 GL

³ VMFRP Program – 72.5 GL

⁴ Constraints Measures Program – 82.4 GL

⁵ 27 pack returned a supply contribution of 420 GL (Murray–Darling Basin Authority, 2017c)

References

Lee, J 2017, *Assessment of the CARM and Modernisation projects for entitlement creation*, Murray-Darling Basin Authority, Canberra, ACT

Martin, W & Turner, G 2015, *SDL Adjustment Stocktake Report*, Report to Ministerial Council

Murray–Darling Basin Authority 2015, *Interim advice on supply measures – November 2015 (Draft)*, Murray–Darling Basin Authority, Canberra, ACT

Murray–Darling Basin Authority 2017a, *Interim advice table*, Murray-Darling Basin Authority, Canberra, ACT

Murray–Darling Basin Authority 2017b, *Assessment of Menindee water saving*, Murray-Darling Basin Authority, Canberra, ACT

Murray–Darling Basin Authority 2017c, *Interim advice on supply measures – May 2017*, Murray-Darling Basin Authority, Canberra, ACT

Office locations

Adelaide
Albury–Wodonga
Canberra
Goondiwindi
Griffith
Mildura
Murray Bridge
Toowoomba

 mdba.gov.au

 1800 230 067

 engagement@mdba.gov.au