



Murray Irrigation

Response to the Murray Regional Water Strategy

Feedback on the draft strategy and long list of options.

MAY 2022

Feedback on the Murray Regional Water Strategy



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Feedback on the Murray Regional Water Strategy



1 Executive Summary

Whilst welcoming the development of a strategy to consider the future availability of water, Murray Irrigation is surprised that the 'long list' has been prepared without significant consultation with irrigators, who account for the use and dependence upon the largest proportion of water use in the NSW Murray Valley.

We want to see an intelligent future use of water. We need water allocation, water flow shares and water trade policies that are sensibly integrated and encourage the development and maintenance of a diverse range of crops and associated industries that are well matched to water delivery capacity and considers SE Australia's variable climate.

For the Regional Water Strategies (RWS) to be successful, and to lead to the honest and thoughtful analysis of future outcomes that can be endorsed by the broad Murray Community (including irrigators), a high level of trust must be developed between Government agencies, those leading this initiative for Government and those likely to be adversely impacted by any changes resulting from the development of such a Strategy. Trust between all parties would be improved if the NSW Government were able to provide a commitment at the outset to the development of shared knowledge, open and transparent analysis of ideas, and the delivery of any changes to how water is shared limited to demonstrably equitable and widely endorsed outcomes.

In the face of a variable climate, Murray Irrigation and its shareholders have led the way during the last 30 years to adapt and to work more efficiently with less water, through investing in irrigation efficiencies and building more flexible and efficient farming operations which are able to expand and contract operations in the face of more variable allocations. We have always lived with a variable climate and are always looking to better understand our climate variables (both dry and wet) and the impacts on future irrigation water availability (past and future); as it is our business and livelihood to do so.

Our livelihoods depend almost entirely on the provision of viable levels of annual water allocations from the 825,000 ML of NSW General Security (GS) Water Entitlements and 121,000ML of NSW Murray Supplementary water held on our licence. Irrigators can help (and have historically helped) the NSW government achieve their environmental and water-use outcomes through on-farm continuous improvement in water use efficiency through innovation. However, to continue to contribute, we need viable annual water allocations which are used within our region for irrigated agriculture to enable us to maintain sustainable and resilient regional irrigation industries, and the dependent communities, for the long term.

In response to the Murray Regional Water Strategy (MRWS), our overwhelming concern is with the fair access to water through the current and any future (changed) available water allocation process. We are concerned future changes may be developed to the way water is shared, possibly as a result of initiatives such as the completion of this strategy, that will not lead to improved water management, or recognise or attempt to counter the cost of these changes to some water sharing principles currently used.

If the Murray system is in the midst of a drying climate with less inflows and more dry years¹, the current water allocation framework and allocation practices (by state governments) has the potential to leave General Security users high and dry. A resultant reduction in available water to the largest current group of users (Murray GS entitlement holders), possibly to make other water entitlements even more secure, would be completely devastating for our communities and the economic and productive contribution to Australia (and internationally).

¹ Draft Regional Water Strategy, pg. 59.

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We have concerns about what appears to be premature conclusions derived from the current climate modelling used to support this Strategy and the possible weighting on the predictability of quite dire outcomes (as identified in the MRWS). We expect any changes in future water sharing policy as a result of the RWS, will recognise the NSW Government commitments and will '*ensure that managing risks to our water security by being fully prepared and resilient to all possibilities, rather than relying on firm predictions and hard numbers*'²

2 About us

Murray Irrigation is Australia's largest private irrigation company delivering water to over 2,100 family-owned landholdings through 2,778km of gravity fed channels and operating \$1 billion of infrastructure. We have also owned and operated one of Australia's largest water exchanges since privatisation which has provided considerable value to our farmers within our area of operations.

3 Response to the RWS long list of options

NSW DPIE should be commended for producing the Murray Regional Water Strategy (MRWS) and forward-planning. The MRWS has covered a broad range of topics that are important to most of the water users of the Murray region. The overarching aim of the delivery of the strategy is to '*ensure beneficial outcomes for a wide range of water stakeholders*' which does not appear to guarantee fairness. We are extremely cognisant of this given the majority of our shareholders are GS entitlement holders and many of the options presented in the MRWS, could represent a threat to our regions water yield and water security.

We are disappointed that given our significant role in water use and delivery in the Murray, our company and its shareholders have not been meaningfully consulted throughout the development of options. Nevertheless, we acknowledge this opportunity to provide feedback. A high level of transparency and trust will make the final strategy much more likely to deliver meaningful and necessary change. As requested from NSW Government, this submission has outlined Murray Irrigation's priority options that we hope to see progressed. We have also outlined the option (13) we hold concerns for and have provided supporting justification.

We have reviewed the long list of options provided and have aligned our priorities with the MRWS. Please note the difficulty in prioritising, as so many of the issues, and possible strategic responses are co-dependent, or at least clearly related. As requested in the RWS feedback form, our top five priorities to be progressed (and matters we would like to see included within) are:

Option 9: Review the allocation and accounting framework in the NSW Murray (regulated system). In particular:

- the progression of a wet year allocation policy investigation and the development of solutions for the (better) utilisation and storage of water, when the dams are full and the river is clearly in surplus.
- a study to investigate what opportunities are available to increase water security through the greater utilisation of the combined storages, in order to reserve surplus water in wetter sequences of years (including SHL's large and underutilised storage capacity).
- a fairer water allocation framework to better manage and to share available water during severe droughts. When there is a dry year, our shareholders (and farms, and employment, and communities) need to be able to continue to contribute regionally and to NSW and Australia.

² Draft Regional Water Strategy, pg. 60.

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- Consideration of emerging imbalances in interstate sharing, and how NSW should respond.
- Reviewing the value of a number of fixed settings in water management that warrant review (e.g., rules-based flows, the value in 2022 of dilution flows, minimum loss allowances etc).

Option 14: Investigate land use change and population growth impacts on water resources: particularly where land use change is likely to cause unsustainable irrigation demand. i.e., to prevent further loss of conveyance water as a result of the conglomerate of new developments with fixed water demands throughout the Lower Murray (i.e., D/S of The Choke). We would like this to include the consideration of new State Government legislative / policy intervention.

Option 21: Managed aquifer recharge investigations and policy: the investigation and development of opportunities for Aquifer recharge, and subsequent recovery to create usable reserves in drought.

Option 37: Undertake a water dependent industry resilience study: that is what factors and changes (if any) provide the opportunity for the highest resilience. For example, combining greatest economic and social benefits derived from the balance of HS, GS and other water entitlement products that match the changing Australian seasons, climate, growing skills and consumer demand.

Option 39: Investigate water availability in the NSW Murray region: Murray Irrigation would like to better understand underuse and in particular, a better understanding of the behaviours that underpin underuse and subsequent mechanisms to address this.

Murray Irrigation hold concerns regarding **Option 13: Investigate water access licence conversion.** Our rationale is outlined below in section 3.4.

Items that were not included within the MRWS strategic options that we would like to see progressed are:

- **Innovation and research into the introduction of technological and water management advances** to minimise the evaporation of stored and run-of-river water (i.e. reduce the minimum loss allowance for river and storage operations).
- **Review the aims, extent, impacts and opportunities of the use of carryover as a risk management tool:** increasing the volume of carryover at the expense of irrigating in the present, is a rational commercial decision for the individual grower and is used as an insurance policy to increase the relative security of their entitlement into next season. It is important to note that this practice can also increase dead storage and reduces the volume of water actually employed in irrigated production. An underlying driver for this is typically low allocations announced at the start of the season (which is the critical decision-making time for many water users) and a lack of confidence of irrigators regarding future indicators of increase. A rebalancing may be required to provide added incentives to use water rather than store it. i.e., one solution may be to enable additional extraction by users to align Murray Valley use more closely with the Sustainable Diversion Limit (SDL) and a framework where higher allocations are able to be announced at the start of the season.
- **A better understanding of the behaviours that underpin underuse. (As mentioned above)** The existence of underuse and better understanding the drivers is not mentioned in any detail in this paper (despite an interstate working group being in place related to dealing with this issue). Murray Irrigation would like to work with the NSW DPIE to better manage underuse and allocation risk. The inherent opportunities exposed through a better understanding of water owner behaviour may provide some leeway for water managers to allocate more water early in every season. Water use for any given

allocation volume in every year for the last 10 or 15 years has been lower than expected relative to the defined SDL (or Cap) for the NSW Murray and Murrumbidgee. There is an opportunity for NSW to make more water available, without threatening a breach of the NSW commitment to operate within the SDL limits prescribed for each valley.

- **Better utilisation of the Snowy storages and how we can increase water security.** Currently, we have 2000GL of RAR water that will be delivered in the coming months into both Murray and Murrumbidgee dams that are already near-full. We support investigating how to better manage unnecessary untimely spilling of water. There are very few, if any, suggestions regarding proposals to consider building new infrastructure, or better utilisation of existing infrastructure to provide greater water security.

We would like to emphasise that this submission has been prepared by Murray Irrigation Limited on behalf of more than 1000 shareholders - therefore please consider the weighting of our submission relative to those made on behalf of individuals. We have consulted with Ricegrowers' Association and the Murray Regional Strategy Group and are of the understanding that overall, the water dependent communities throughout the southern Murray Darling Basin, particularly Murray and Murrumbidgee GS users, have common aims in seeking to influence the development of this list of options through honest and transparent engagement with NSW DPE.

There is a broad sentiment in the Murray region that there has been an erosion of trust between DPE and stakeholders. In the event a good working relationship with DPE and stakeholders can be created, and a high level of trust between parties assured, this process could result in outcomes that are fair, transparent, and generally positive for all stakeholders as we work together in a changing climate.

3.1 A note on resilience and diversity

One of the great strengths of the southern Murray Darling Basin has been the diversity of the irrigated sectors present. This diversity is expressed through a large number of small and large irrigation businesses involved in a wide variety of sustainable irrigation dependent industries on a diverse range of soil types and districts in three states. Along the Murray River this has been dominated by irrigation in traditional irrigation areas, such as the GMID and within the Murray Irrigation Limited NSW footprint.

It is helpful to see these sectors as falling into three broad classes characterised by the relative security of the water resource traditionally required and utilised by growers:

- **Very high security entitlements:** Used by permanent plantings where water is required each year. Able to command premium prices in the water market.
- **Medium to high security entitlements:** Accessed by the irrigated dairy sector and some higher value annual crops (e.g. cotton, corn, specialist seeds) where some reduction is possible in dry seasons through reducing the scale of production or through substitution with alternative products, such as bought-in fodder.
- **Medium to Low security entitlements:** Used by annual crops (e.g. rice, livestock pasture, cereal crops) where the area planted, cropped and irrigated was directly proportional to the level of allocation available and the relative price in water markets.

This variety and diversity have resulted in optimal outcomes, such as:

- Maximum use is made of the available resource under all climatic scenarios; whereas the total area of high security permanent plantings (usually horticulture) can only ever expand to the area that can be confidently irrigated in very dry seasons. Surplus allocation is available from lower value sectors to support permanent

plantings in very dry seasons. This provides a buffer and insurance policy, despite the high one-off cost in securing water during severe shortages.

- The diverse range of sectors and their value adding processing creates diversity, value and resilience in regional economies and communities. For example, the milk factories in northern Victoria or the rice mills in Deniliquin and Leeton that employ thousands of local residents and is typically embedded within large irrigation scheme areas. There is evidence³ of the almost unimpeded transfer of water entitlements from traditional irrigation areas during dry seasons since the drought in 2007, leaving a range of stranded public and private assets that were dependent on sustainable, regular irrigation water flows. The loss of confidence in some of the traditional districts that has been created by both droughts and the trade out of entitlements, has had a negative and snowballing effect on both on-farm and processing industry investment.
- The reliance on a limited range of production sectors also creates a greater risk of disruption or collapse of production, as a result of a number of potential factors, including:
 - In the case of a repeat of a severe drought such as 2007-09, the impact of developing significantly more area of permanent plantings than can be supported from all available water sources. This is particularly relevant given the high levels of water recovery since 2007 and the allocations of water now held as environmental entitlements are no longer available in a drought sequence.
 - The changes in demand in a fickle international marketplace exposed to unpredictable political sentiment.
 - The impacts of an unforeseen event on supply, such as a biosecurity incursion.
 - The changes in the investment appetite of international pension funds and trusts who now control the large majority of the corporate funding for new, expanding horticultural production⁴.

By protecting the interests of the unbridled expansion of permanent plantings, particularly irrigated almonds⁵ at the expense of maintaining a wider, more diverse broadacre irrigated economy, risks undermining the viability of both the permanent plantings and the wider diverse production.

It is plausible that reducing diversity of agricultural production in southern NSW will become irrevocable, and despite economics ultimately causing further massive adjustment as some new thirsty industries fail; Governments will be asked to foot the bill and whole irrigation dependent and once vibrant irrigation communities will be lost.

3.2 Overall comment on SDL projects.

The Murray community has a heavy reliance on NSW being able to deliver their commitments in terms of the proposed SDL offset projects. Murray Irrigation is committed to working with NSW to create further opportunities to create environmental water. Any compromise on the SDL projects which reduces the equivalent recovery, creates a further risk to water users in the NSW Murray Area.

Failing on these projects is not an option.

³ RMC (2019) Recognising under-use in the Southern Basin – and taking action. Methodology and Analysis.

⁴ NSW Farmers Association (2019) 'Who owns Australia's Farms?' This article indicated more than 2,000GL of water is owned by interests from China, the UK, Canada and the US. This is equiv. to 9.4% (by total entitlement number), of the total Murray Darling Basin resources assigned to irrigators.

⁵ Almond Board of Australia (2019) The Almond Orchard area planted to almonds increased from ~21,000 hectares in 2006 to 53,014 hectares in 2019". More than 90% of Australian almonds are grown in the connected Southern Murray Darling Basin.

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The immediate issue of successfully delivering the 605GL of Sustainable Diversion Limit (or SDL) offset savings (which are mentioned in the foreword) must be a priority for NSW. We are aware that there are two sites on the Murray and NSW can't guarantee that successful project delivery will happen.

Consultation related to projects like the Constraints relaxation, Menindee reconfiguration and Murrumbidgee River effluent creek savings appears to have been erratically managed which makes future engagement with stakeholders very difficult. A time extension for the delivery of key NSW SDL offset initiatives to define, negotiate and deliver these initiatives is clearly needed. Based on current legislated settings, any failing to deliver these SDL-offset water savings will result in further water entitlement recovery using market mechanisms which will inevitably hit the southern MDB NSW GS user communities quite hard.

Specifically:

- **2011 Snowy Water Licence Schedule 4 Amendments (River Murray Increased Flows):** There is scope to consider investment upgrades and increase storage capacity and the utilisation of storage.
- **Snowy Hydro Required Annual Release Management:** The Snowy system and associated licence conditions can be better utilised to retain more volumes of water during wetter years (especially in lower tributaries), ensuring RAR fulfilments are being met and a more reliable product in drier years. Estimated volume could be 100GL every 5 years or an average of 20GL/ year possible benefit (1.2% increase).

3.3 Inadequate water management framework to meet the need and aspirations of Aboriginal people

There is a clear need to create space in modern river system management for the protection of Indigenous cultural and spiritual values. Traditional Owners have the capacity to contribute effectively to the management of water for cultural purposes. The NSW Government should ensure Traditional Owner objectives are considered in the planning and delivery of environmental water to support healthy, thriving, culturally significant species.

Regarding options 1-7, MIL support these options; however, the options presented in the RSW are highly interdependent and should have been considered as one option and realising Traditional Owner aspirations should be part of core business for the NSW Government.

3.4 Current water sharing arrangements based on 125 years of data

Option	Feedback
8. Review drought rules for the NSW Murray region	<p>Murray Irrigation support progressing this option.</p> <p>There needs to be some boundaries on this study to avoid the worse-case climate scenario driving a collapse in a large proportion of existing irrigated agriculture (that has already adapted to a wide range of climate variability). In a drought, our experience has been that the current allocation policy severely limits access to water.</p> <p>For completeness, a review should incorporate interstate drought water sharing arrangements; recognising there will be some entrenched positions on this matter. Any measures a review may highlight that leads to a reduction in loss allowances set aside for river operations in dry years, are to be encouraged.</p>

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<p>9. Review the allocation and accounting framework in the NSW Murray (regulated system)</p>	<p>Murray Irrigation would strongly like to see this option progressed.</p> <p>It is possible this could yield important information for users and be a project that delivers positive change. However, this is a significant undertaking and would require some ground rules to make sure the process is fair before commencement. (Please note: that the GS user confidence that there will be a fair outcome in any review of both accounting and allocation processes is very low).</p> <p>We would encourage the investigation into a wet year allocation policy, noting the current level of regular underuse relative to SDL's in the sMDB.</p> <p>The outcomes of this investigation may enable additional extraction to meet SDL limits either through increased allocation %, increased supplementary % or amend UCF rules. Additional environmental outcomes can also be achieved through this approach MIL would like to work with DPE to develop a framework to enable additional extraction in wetter years for intelligent water use for both agriculture and the environment.</p> <p>We would like to see a fair allocation policy introduced for our GSE holders to continue farming in drought and/or successive dry years, with at least a small volume of water. Murray Irrigation would like to work with the NSW DPE to develop means to better manage the allocation risk. The inherent opportunities exposed through a better understanding of water owner behaviour may provide some leeway for water managers to allocate more water early in every season.</p> <p>This more iterative allocation policy, which is more nuanced than one which simply reverts to 'worst ever' in every circumstance, should be reviewed and be open for discussion. The 2007 drought inflows have created a framework for allocation that is conservative, and <u>that almost always under-allocates</u>. Combined, all-state carryover by irrigators in the connected southern MDB now exceeds 1M ML in every year and even NSW Murray carryover is constantly more than 20% or 320,000ML</p>
<p>10. Investigate Murray River system water sharing, delivery and accounting arrangements under the Murray–Darling Basin Agreement</p>	<p>Murray Irrigation support this review, but at the same time have concerns of what may entail.</p> <p>The basis of the River Murray or MDB sharing of water between states is more than 100 years old and a review is warranted. In addition, the introduction of trade and irrigator carryover has changed the way water is used and managed - for better and worse.</p> <p>Any positive change for NSW for a fairer share will require very dedicated advocacy. If there are to be less base stream flows (as a result of a changing climate), it may no longer be appropriate to maintain SA's mandated monthly flows. A more modest series of targets and base flows may be more appropriate than to assume NSW & VIC must enable flows to ensure flows out the Murray Mouth 95 years in 100. Additionally, delivery losses incurred and set aside are simply too high given the technologies available to monitor and to better manage rivers and streams.</p> <p>Review of the water accounting: clearly the introduction of carryover and enthusiastic adoption by users has created a change in water availability, water use, and water in-system at any time and is an issue to be understood (and possibly acted upon) by both users and Government's.</p>

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	<p>For example, accounting for the Barmah-Millewa rules-based allocation may have been 'flooded' by the Basin Plan's creation and delivery of a large E-Water portfolio. It is worth investigating if the current BM allocation delivers any tangible benefit for the BM forest, and if it no longer assists the forest, it should be reviewed, modernised or even abolished. Likewise, other investigations to more efficiently deliver water into this forest to achieve environmental outcomes (instead of relying upon large volumes of flow down the river) should be considered.</p>
<p>11. Review groundwater extraction limits</p>	
<p>12. Provide increased clarity about sustainable groundwater management</p>	
<p>13. Investigate Water Access Licence conversion</p>	<p>Murray Irrigation do not wish to see this option progressed.</p> <p>Murray Irrigation's strong view is that rather than looking to continue to aim to recover more water, the expectation we have of NSW Government is that investment into technology and research into water efficiency is prioritised to improve the reliability of this entitlement; as we ourselves have held up our end of the bargain. Irrigation companies and irrigators are making strenuous efforts to save water through irrigation efficiencies, <u>and we expect other industries and State Government to do the same.</u></p> <p>Historically, this has been an issue before when conversion was allowed (with conversion ratios of 1 GS for .8 HS, and later 1 GS for 0.5 HS entitlement) and there were some clear winners before the practice was restricted, then ceased by law in about 2004. Even if a conversion mechanism was available, conversion is probably not required by towns with a desire to create even more town water entitlements as nearly all Murray Towns are drowning in surplus water.</p> <p>Additionally:</p> <ul style="list-style-type: none"> ▪ The impacts of encouraging more 'high security' plantings, which is a natural result of enabling conversion from GS entitlements of such a measure and should also be considered (See Option 14). ▪ The limited storage capacity maybe an issue for a HS product in a drying climate. ▪ This will be strongly opposed by the current HS entitlement holders in NSW Murray and Murrumbidgee, unless the proposed conversion rate is really significant (e.g., 1 ML of HS for 6 of GS). <p>NSW General Security entitlement owners and those in service industries that depend on their irrigated production, are feeling the brunt of this shift in priority from a water management regime that has traditionally delivered a high annual yield, to the current lower yielding policy setting that delivers higher annual security of supply.</p>

3.5 Insufficiently integrated land and water planning and management

PLEASE NOTE: The Murray Region, in the context of NSW, has some nuances that are important but have not been grasped in the Draft MRWS. The townships of the Murray Region do not have the same water scarcity concerns as that of other NSW communities. We sit on the edge of the country's greatest river. We all live in or rely on the towns that rely on a secure urban water supply, but that's only 1% of our water use. Even in a dry year with 0% (General Security) allocation, the Murray River can be running with high daily flows year-round.

<p>14. Investigate land use change and population growth impacts on water resources</p>	<p>Murray Irrigation support this option in respect to the planting of orchards in locations that cannot be sustained during drought periods, in particular developments downstream of the <i>choke</i>.</p> <p>We want to see an intelligent use of water. We need water allocation, water flow shares and water trade policies that are sensibly integrated and encourage the development and maintenance of a range of crops and associated industries that are well matched to water delivery capacity and considers Australia's variable drying climate, with higher winter temps, dryer springs and more summer rains.</p> <p>We would like to see an assessment⁶ and acceptance of the fact that the present suite of policies and tools may be currently undermining this objective by specifically limiting water availability in NSW (and to some extent in Victoria). It is possible we may be transitioning to one large horticultural user group that grow a narrow range of crops and are located in just a few specific regions.</p> <p>If we continue to encourage permanent plantings (almonds etc) we run the risk of creating a monoculture of crops with rigid annual demands, and the benefits of having a wide range of irrigated crops, with varying capacity to go in and out of production annually will be lost. We need a crop mix to emerge that optimises available water in wet and dry years and utilises our current (and possibly future) water management and water storage infrastructure well.</p> <p>Rather than waiting for failure as drought returns or rivers are unable to deliver, serious consideration should be given to limiting the total developed area of permanent plantings in lower reaches of the river systems (noting that much of this is not in NSW). The added losses from the transfer of water further downstream should be seasonally limited, or at very least accounted for within the water transferred. This volume should not be subtracted from the pool available for allocation to General Security licence holders.</p>
<p>15. Develop climate risk evidence base to inform the next Snowy Water Licence Review</p>	
<p>16. Enhance southern inland floodplain management plans</p>	<p>Please note, Murray Irrigations current commitment to enhance floodplains, outlined in Option 32.</p>

⁶ This is supported by the Productivity Commission National Water Reform Inquiry Report (2017) Key priority for future reform: revising policy settings in a number of areas, including planning and entitlements frameworks, water trade and adjustment assistance: Developing contemporary water entitlements and planning frameworks (pg. 17).

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17. Investigate water quality improvement measures	
18. Manage groundwater salinity	
19. Monitor sediment compaction over the long term	Please note, Murray Irrigations concerns regarding deliverability of water to users downstream of the choke.

3.6 Vulnerability of town water supplies and amenity

We challenge the risk assessment outlined for the primary water sources of towns of the Murray (pg. 133-134) as we believe the incorrect risk lens has been cast over the assessment. The townships of the Murray region use very little water, as has been pointed out (***equates to less than 2% of all licensed water entitlement in the region***). The anticipated population growth is very small in comparison to larger regional towns. Based on the options outlined in this section, there is much work that can be done to build the water resilience of these towns to lessen their risk. We support NSW Government working with Local Government to progress these options.

We understand this strategy currently prioritises the delivery of water for critical human needs and that the issue of water for irrigation is not really a strategic priority in the state-wide program in twelve catchments. However, in the NSW Murray valley, town water is very secure, but water security is a key issue for NSW Murray GS water users. In the 2007 drought, (and again in 2017) despite towns only suffering modest restrictions, there was virtually no water allocation for NSW Murray Irrigators for two years in a row. In 2007, NSW Murray Water Sharing Plans were suspended.

Option	Feedback
20. Review impediments to water recycling projects	<p>Murray Irrigation support progressing this option and to any option that provides improved water security.</p> <p>Murray Irrigation's sentiment is that the conservative approach to water allocations for irrigators in dry years is heavily influenced by the concern of protecting town/urban water supply. To lessen this risk and reliance on potable and groundwater, town water use can be heavily subsidised by using more recycled water to support public open spaces; such as recreational reserves, golf courses, industry and Agriculture that is close to the wastewater treatment plant and supporting infrastructure (pipelines).</p> <p>To ensure that any conservative approach to water restrictions is well informed, we believe that making some 'easy wins' in progressing recycled water use in towns is as important as any water saving initiatives from GS and HS holders. Although the volumes are smaller, the capacity of the community in this category is much greater to capture and efficiently utilise any rainfall (rainwater tanks) or runoff projects.</p>

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<p>21. Managed aquifer recharge investigations and policy</p>	<p>Murray Irrigation support progressing this option.</p> <p>There could be opportunities in the Murray and Murrumbidgee region to progress artesian storage through forced recharge and would look to work with NSW Government to help identify, build and operate these reserves and to assist in accessing water held in these aquifers in times of drought.</p>
<p>22. Secure and reliable access to groundwater for towns</p>	<p>Overall support.</p>
<p>23. Maintain water-related amenity in the NSW Murray region during droughts</p>	<p>Murray Irrigation support progressing this option as water amenity is at the heart of the liveability of our towns and communities. This is on the important condition that such initiatives, particularly the maintenance of large shallow artificial water bodies in hot dry areas, may conflict with good environmental management and modern effective water conservation.</p>
<p>24. Investigate inter-regional connections</p>	<p>Overall support.</p>
<p>25. Investigate groundwater desalination for industry and towns</p>	<p>Murray Irrigation supports any initiative that introduces “new” water into the water use portfolio, especially if it means an improved reliability for the General Security Water holder. We feel opportunities to utilise excess (or peak periods) of future renewable energy could convert saline water into fresh water either along inland river systems or at sites close to the sea (for example the lower lakes).</p> <p>We note that we operate Australia’s largest saline shallow groundwater interception facility (the Wakool Tullakool Sub Surface Drainage Scheme) and are enthusiastic about future opportunities where saline water could be converted to fresh water for productive use. Around 2,000ha is currently available to deposit saline brine which can then be managed to produce other salt related products.</p>

3.7 Degradation of riverine and floodplain ecosystems

Murray Irrigation participate in improving environmental outcomes by providing our supply network for targeted environmental water delivery. We will continue to work with governments to achieve environmental outcomes without the need to simply recover more water. We are in the early stages of implementing, what could Australia’s largest targeted and integrated environmental watering program to reconnect a number of disconnected ephemeral and wetland systems and seek governments support to implement this and related initiatives. We anticipate that downstream NSW and Victorian communities will rely on our infrastructure more in the coming years.

The environmental water holders are now the biggest single water owner delivering much larger volumes of water. Loss factors are used if these flows contribute to overbank events, e.g. at Barmah Millewa Forest. If these loss factors are conservative, it means less water available for GSE holders. Environmental water

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delivery rules need to be reviewed to ensure they are working as intended and do not impact GS reliability. We would like to see rules identified that may cause an impact and a focus on rules that are no longer required in light of large environmental water volumes obtained.

Murray Irrigation is also working with the MDBA to investigate options to reduce pressure on the Barmah Millewa Choke where a theme of “intelligent use” of water can emerge. This means that different parcels of water can be used to achieve environmental outcomes while on their journey to an end point. More thinking in these areas to better utilise existing parcels of water to seek win-win outcomes for all users is of strong interest to us.

Option	Feedback
26-31	Overall support - no comment on relevance or priority.
32. Review environmental water arrangements	<p>Overall support.</p> <p>The environmental water holders are now the biggest single water owner delivering much larger volumes of water. Loss factors are used if these flows contribute to overbank events, e.g. at Barmah Millewa Forest. If these loss factors are conservative, it means less water available for GSE holders.</p> <p>Specifically, we think the following needs to be reviewed:</p> <ul style="list-style-type: none"> a number of rules-based environmental watering programs (particularly the large allowance provided by NSW and Victoria for the BM forest) in the light of the large volume of stored E-water now provided to environmental sites. environmental water delivery rules and practice, to ensure they are working as intended and do not unintentionally over-provide E-water and adversely impact reliability for other water entitlement owners. This issue requires better understanding and possible action in relation to the different rates of utilisation of stored water by irrigation water users and environmental water users.
33, 34	Overall support - no comment on relevance or priority.

3.8 Limits to water in a changing climate

Option	Feedback
35. Better understand water use with data collection and analytics	Based on the limited information provided to date we are not able to endorse or dispute the trends emerging from the climate modelling provided, but we dispute the most suitable future climate scenario to adopt when planning for future water sharing, and possibly reallocating risks between user groups. The NSW GS users have adapted to surviving both droughts and floods.

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	<p>The understanding of current water-user behaviour in the context of more mature markets and utilisation of private carry over needs to be incorporated into any analysis and may provide opportunities for improved outcomes for those Murray GS users depending on at least some early-season allocation.</p> <p>As a priority, the new data and analytics should also be used to focus on what needs to be done to increase the proportion of surface water available to all users in a drought, and to sharpen water management by our river operators.</p> <p>Specifically in a drought year, it shouldn't require a million megalitres to be set aside before any water is allocated to users to run the Murray River to the SA border. Irrigation Corporations in NSW have demonstrated an enormous capacity to improve water delivery efficiency through their canal systems utilising better monitoring and water management. NSW and MDBA river operators in control of the Murray should investigate what is possible and establish lower annual river operating loss allowances as a matter of priority.</p>
<p>36. Improve the understanding of groundwater sources and processes, risks and impacts</p>	<p>This option is supported overall and may enable urban water supplies to be secured, for recovery from recognised recoverable groundwater during a severe drought.</p>
<p>37. Undertake a water dependent industry resilience study</p>	<p>Murray Irrigation support progressing this option, recognising the risks associated with Government funded studies that result in 'picking winners' in irrigated agriculture.</p> <p>We would like to see the inclusion of Resilience <i>and</i> optimisation. i.e., determining what mix of entitlement product water securities, water use, carryover and irrigated crop-types (land use) provides the opportunity for the highest resilience for NSW Murray communities? (i.e., without selecting actual products, it is important to understand the combined greatest economic and social benefits derived for the NSW Murray from the best possible balance of HS, GS and other water entitlement products that best matches the changing Australian seasons, climate, growing skills and consumer demands. The analysis must be done in the context of a market that spans a range of geographical areas, and multiple long river valleys in three states in the sMDB.)</p>
<p>38. Develop targeted education and capacity building programs</p>	<p>Murray Irrigation support progressing this option.</p> <p>As expressed, for our irrigators to continue to be resilient, and we would like to see a targeted program for major water users to work constructively with governments for better water management and better water use in future. This option aligns with assisting our organisation and shareholders. Importantly a commitment to '<i>education and capacity building</i>' is not to be seen as a substitute for Government's recognising fully the costs of actions that benefit one group at the cost of another.</p>

Feedback on the Murray Regional Water Strategy



<p>39. Investigate water availability in the NSW Murray region</p>	<p>Murray Irrigation support progressing this option, but at the same time are not entirely clear what this initiative means. Murray Irrigation would like to better understand underuse and in particular, a better understanding of the behaviours that underpin underuse.</p> <p>Irrigators, irrigation corporations, and industry/state research organisations have been investigating and applying ways to enhance water availability through the more efficient delivery and on-farm use of water in the Murray Valley and throughout Australia for more than 100 years.</p> <p>As a result of the interaction between current policies, current allocation practice and water-user behaviour we have constant underuse (relative to use in the past, for the same volume of water available).</p> <p>Importantly, the 1 million ML of losses assigned to state and MDB water managers to run water for each year in the Murray River between Hume Dam and the SA border needs to be reduced through the introduction of appropriate water management technologies, sensibly applied. This is a significant proportion of the total water available in a drought year.</p> <p>Irrigators in all industries will continue to push Water Use Efficiency on-farm.</p>
<p>40. Investigate non-residential water efficiency (towns and industries)</p>	<p>Murray Irrigation support this investigation. As outlined, we feel that the burden of water recovery has been placed upon irrigators and would like to see other water users find efficiencies.</p>
<p>41. Investigate the expansion of cloud seeding in key water supply catchments</p>	<p>Overall support.</p>
<p>42. Undertake joint exploration for groundwater with the NSW Geological Survey</p>	<p>Overall support.</p>
<p>43. Review water markets and trade</p>	<p>Overall support.</p> <p>It is possible a number of 'third party impacts' created by water movement through trading of water have not been properly recognised and are being paid-for by other water users (who do not benefit from the trade). High delivery losses for the extra downstream deliveries traded-in in mid-summer to meet new demand are a case-in-point.</p> <p>The use of water trading has facilitated the expansion of high value permanent plantings downstream of the traditional irrigation areas and provided a much-needed source of water for high value plantings from the reduced pool of all available water in severe droughts. It has also enabled the development of high value orchards, without the development-expense of purchasing water entitlements. That has generated</p>

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	<p>benefits in terms of the value of production, and the value per ML used. However, the greater distance travelled from the water storage dam has also increase to make sure water can be delivered to remote orchards has reduced the volume available for allocation to general security users.</p> <p>We note that irrigators living in irrigation areas (canal-supplied or piped scheme areas) and the huge volume (more than 65% of combined use in the sMDB) of water delivered through shared infrastructure is much more vulnerable to drying out of neighbouring farms as a result of water trade (or indeed buy-back initiatives).</p>
Option 44.	Overall support.