2 SEPTEMBER 2020

National water reform

Productivity commission inquiry 2020

Submission on behalf of SunRice and the Ricegrowers' Association of Australia

Table of Contents

Submission reference

Table SR1-1: Submission reference to the Productivity Commission issues paper information request

ISSUES PAPER INFORMATION REQUEST	CHAPTER	PAGE	PARAGRAPH
INFORMATION REQUEST 1 ▪ The Commission welcomes feedback on: ▪ Whether the signatories to the NWI are achieving the agreed objectives and outcomes of the agreement ▪ Which elements of the NWI have seen slow progress ▪ Whether there are cases where jurisdictions have moved away from the actions, outcomes and objectives of the NWI ▪ Any other data and information sources that might be useful for assessing progress.	1. Problem definition	1	2 - 6
	2. Impact on general security licences	3	All
INFORMATION REQUEST 2 ▪ Is the NWI adequate to help Governments address the identified challenges? ▪ Are there any other current or emerging water management challenges where the NWI could be strengthened?	1. Problem definition	1	5-7, 1-2
INFORMATION REQUEST 3 ▪ The Commission welcomes feedback on the matters that should be considered for inclusion in a renewed NWI.	2. Impact on general security licences	3	All
	3. Diversity and resilience	6	All
	4. Solutions	8	All
INFORMATION REQUEST 4 ▪ How effective are water plans at managing extreme events such as severe drought? ▪ Are NWI principles being applied at these times? ▪ What steps have been undertaken — or should be undertaken — to plan for long term changes in climate? ▪ What lessons have recent extreme events (bushfires and COVID 19) provided for planning?	2. Impact on general security licences	3	
	4. Solutions	8	All
INFORMATION REQUEST 5 ▪ How could the NWI be amended to support best practice monitoring and compliance across jurisdictions?	4. Solutions	10	5
INFORMATION REQUEST 6	Not addressed		
INFORMATION REQUEST 7	Not addressed		
INFORMATION REQUEST 8	Not addressed		
INFORMATION REQUEST 9	Not addressed		
INFORMATION REQUEST 10	Not addressed		
INFORMATION REQUEST 11	Not addressed		
INFORMATION REQUEST 12	Not addressed		
INFORMATION REQUEST 13 ▪ Are there any areas for future reform of the NWI that have not been raised in this issues paper that should be investigated for inclusion?	3. Diversity and resilience	6	All
	4. Solutions	8	All

Executive summary

SunRice and the Ricegrowers' Association of Australia (RGA) welcome the opportunity to provide this submission to the Issues Paper published by the Productivity Commission as part of its inquiry into National Water Reform.

The SunRice Group is a major Australian branded food company, and one of the world's largest rice food companies with approximately 2000 employees across multiple businesses. With significant receival, storage, processing and other value-add facilities in the Riverina of NSW, the Group is responsible for the vast majority of Australia's domestic rice processing. Formed in 1950 when a group of Riverina rice growers pooled their resources to build a single rice mill, the Group is now celebrating its 70th anniversary and is listed on the ASX with a dual-class share structure. In order to hold an A Class Share in the company – which are the class of share entitled to vote at general meetings, control the election of Directors and any changes to the Company's Constitution – you must be an active Australian rice grower.

The RGA represents the interests of its approximately 1200 voluntary members, including Riverina rice growers operating throughout the Murray and Murrumbidgee Valleys of southern NSW.

Both organisations have a strong interest in the viability and success of irrigators in the Murrumbidgee & Murray Valleys of NSW, with an overlapping interest in a successful and fair implementation of the National Water Initiative (NWI).

For the close to 2,000 NSW family farmers whose livelihoods depend almost entirely on viable annual allocations from the NSW general security water entitlements held in southern NSW, the overwhelming concern is the fair access to water.

The synergies for the best possible outcome from a refreshed NWI are so strong, that a joint submission was deemed as appropriate[1].

Despite a strong focus on the shortcomings of the NWI and its application in this submission, the authors acknowledge there have been significant benefits throughout the irrigation industry, including for stakeholder irrigators in our organisations that are directly attributable to the NWI.

This submission outlines the shortcomings of the NWI implementation and the likely causes. We have made a sincere attempt to provide suggested solutions that we believe are feasible and sensible.

This submission does not address all of the aims of the NWI, and is primarily providing feedback on the following NWI objectives:

i. Clear and nationally compatible characteristics for secure water access entitlements
ii. Transparent, statutory-based water planning
iii. Progressive removal of barriers to trade in water and meeting other requirements to facilitate the broadening and deepening of the water market, with an open trading market to be in place
iv. Addressing future adjustment issues that may impact on water users and communities.

[1] As discussed with Productivity Commissioners, Dr Jane Doolan and Drew Collins on 20 July 2020.

As outlined in Table SR1-1, we have also addressed the NWI Issues paper information requests to assist.

We believe the implementation of the NWI has caused a number of significant, unforeseen and unintended adverse impacts inconsistent with the NWI's intent, including:

- Prioritising water trade over the protection of the environment and undermining some third-party property rights; such as the distortion of the annual yield and reliability of specific lower security entitlement products
- Enabling downstream agricultural development that has not taken into account the environmental, social and economic impacts of delivering the extra water required for greenfield sites, including the impacts on upstream communities
- Perverse socioeconomic outcomes resulting from a priority weighting of NWI economic performance indicators being narrowly focused (for individual investors in water) and being inconsistent with the NWI's stated triple bottom-line objective
- An absence of performance indicators, or meaningful Monitoring, Evaluation and Reporting (MER) process as a basis for sensible assessment and adjustment of policies that is consistent with the NWI's structural adjustment provisions.

Since the NWI was established and signed off by participants in 2004, the social, economic and environmental landscape of the Murray Darling catchment has changed. The NWI 2004 prioritised addressing overallocation to improve environmental health and facilitating water trade. By contrast, this review of the NWI should prioritise actions and commitments by states that deliver:

- Policies and sharing principles that recognise the impacts of increasing climate variability, particularly reducing average stream-flows
- Genuine triple-bottom line outcomes and focus on how best to maintain the diversity of irrigated crop-types throughout the region
- Maintenance of a critical and viable mass of users in established irrigation areas, and
- Maintain a sustainable scale and range of irrigated agricultural production in the national interest, and the interests of rural and regional Australia.

Ideally, a revised NWI will:

- Expand triple bottom performance indicators to include a commitment to delivering socioeconomic impacts for communities, processing and service industries
- Protect entitlement integrity from changes in river operations and policy drivers
- Recognise that third-party interests go beyond protecting only those with a financial or legal interest in a water entitlement
- Force inclusive and robust monitoring, evaluation and reporting against the risk assignment framework
- Enable a transition to a drier and more variable future climate that enables an equitable sharing of change between all classes of users (including modifying any prescribed or rules-based flows if required)
- Attach funding to delivery of all provisions, not to selective implementation.

As outlined in our covering letter, the RGA and SunRice believe there need to be three additional objectives added to the original 10 from the 2004 National Water Inititative

1. Fairness and equity for all water users (including the environment)

The impacts of water reform have not been distributed fairly and equitably to date. The productive sector has been placed under great pressure to 'do more with less'. However the environment, towns

and stock and domestic users and river operators have not been subject to the same standards of efficiency. For example, there is much opportunity to improve environmental outcomes and reduce water wastage through changing the planned environmental water rules. However the current water regulation framework has prevented consideration of any such changes.

Furthermore, and as highlighted in our submission, lower reliability water users have borne the brunt of reduced water availability, while at the same time other productive water users have benefited from reform.

2. Recognition of the highly variable nature of Australian water resources

A number of recent reports, including the report from the Interim Inspector General of Murray–Darling Basin Water Resources[2], have highlighted the trend of reducing total availability and increasing variability of the Murray Darling Basin's water resource.
Despite this, there has been a trend of increasing total demand for resource, and increasing reliance on permanent water availability. A more holistic government planning and regulation approach is needed to ensure that changes in demand and use patterns across the Basin are complementary to the Basin's water availability characteristics, and that there is an appropriate balance between annual and permanent plantings.

It is critical that there is a diversity of commodities grown in the southern Murray-Darling Basin, to ensure diversity of industries, global risk and income generation which support the ongoing social and economic fabric of the communities that rely upon irrigated agriculture.

3. Genuine and meaningful community co-design and participation in future water reform

Community stakeholders throughout the Basin feel disenfranchised with the water reform process. Government processes have failed to sufficiently consult with, engage and/or empower community members and stakeholders to contribute to and participate in water reform. This has resulted in a significant erosion of trust and confidence in water reform decisions and processes. The recent NSW water sharing plan review process is a good example of this. This can be contrasted with the previous Land and Water Management Plan program, which are often described as the leading example of effective community water reform process and decision making. Nevertheless, a commitment by all governments to improved community engagement in water reform is required.

[2] "Impact of lower inflows on state shares under the Murray-Darling Basin Agreement", 17 April 2020, https://www.igmdb.gov.au/reviews

1 Problem definition

The NWI[3] had the objective that the reforms it promoted would:

> ***'… result in a nationally compatible, market, regulatory and planning based system of managing surface and groundwater resources for rural and urban use that optimises economic, social and environmental outcomes.'***

The NWI also had the twin core objectives of:

- Addressing overallocation to better protect the environment
- Removing barriers to trading water entitlements and allocations.

Those objectives have now been largely achieved, which is a considerable achievement.

Unfortunately, the NWI initiative and reforms that have been implemented by Australian states since 2004 have also adversely and inequitably impacted on one particular class of water users. i.e. the holders of general security entitlement in southern NSW and Low Reliability Water Shares (LRWS) in Victoria. This impact has been made worse in a drying climate. The NWI review now needs to restate the objectives to promote and maintain an optimal social, economic and environmental outcome.

The bias that has been created through reform application, combined with a low level of meaningful review and lack of genuine consultation since the early 2000's, has resulted in suboptimal outcomes that have placed the long term viability of regional economies at risk.[4] It has also adversely impacted on the value and utility of the portfolio of water entitlements[5] now held by both irrigators and the State and Commonwealth environmental water holders.

As more water entitlement owners and users adapt to improve water security in the face of more insecure supply, there is a commensurate reduction in the average annual yield (or use).

NSW general security entitlement owners, who are often ricegrowers, 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. State Government agencies[6] may argue that this change has been strongly enabled through the application of NWI principles applied to water sharing in southern NSW and northern Victoria.

Regardless of the popularity of carry over as a tool and it's now embedded use by irrigators in all irrigation sectors, it is possible the current carry over policies combined with a number of other factors are creating a suboptimal total average annual water use and lower total production of a wide basket of irrigated products.

It is suggested that the Productivity Commission (PC) investigate if the current balance between annual average yield and water supply security being delivered under the current water sharing, water trading and water management provisions are understood by the NWI participants, including the key state and federal water management and agricultural agencies.

---

[3] National Water Initiative (2004) Intergovernmental agreement on a National Water Initiative.

[4] SunRice (2019) Further outlined in SunRice submission to ACCC enquiry into water markets in the Murray Darling Basin (2019).

[5] Referred to as 'water shares' in Victoria.

[6] Currently the NSW Department of Industry and Environment (Water) and The Victorian Department of Environment, Land Water and Planning.

More importantly it is important the settings now applied, or to be applied in future, are meeting the broader environmental, social and economic aims of state and national water managers. Current evidence supports the proposition that the effective creation of more dead storage[7] in almost all key dams through the adoption of a series of new and risk averse water conservation policies by Governments and irrigators, may be costing the total irrigated economy significantly.

Fortunately, a restoration of the balance to deliver the best possible mix of irrigated agriculture is possible. irrigators in southern NSW encourage the PC to recommend a strong focus on modifications to the 'trade at all costs' mantra embedded in current policy; and to deliver a productive, economically sound, equitable and optimised approach to water sharing as we continue to navigate and adapt to greater climate uncertainty.

[7] BOM water dictionary: In a water storage, the volume of water stored is below the level of the lowest outlet (the minimum supply level). This water cannot be accessed under normal operating conditions.

2 Impact on general security licences

General security (GS) water licences have always been the backbone of irrigation across southern NSW. Under the Water Sharing Plan for the NSW Murray and Lower Darling Regulated Rivers Water Sources 2016[8], high security licences were allocated only 191,698ML from the Murray, whereas general security were allocated 1,672,226ML. In reality, this ratio was even more extreme, given much of the high security licence allocation was hardly used, year after year until the early 2000's.

At the time, general security licence holders accepted that high security licences should have preferential access to available resources and that their own allocations would vary between years. However, in implementing the NWI and related reforms, the rights of the high security licences have been honoured and protected, while the rights of the holders of General Security licences have been adversely and unfairly impacted.

A number of NWI related policies and programs have contributed to this outcome:

1. **Carryover:** In the past there was socialisation of un-used water at the end of the season. The introduction of carryover has given irrigators the right to carry an unused allocation forward individually at the end of the season, to provide greater certainty for the following year. This rational strategy for the individual grower has been embraced. However, it results in a sub-optimal outcome at a regional scale as it effectively locks up a significant and greater[9] proportion of the available resource each year and reduces the total volume of water actually employed in growing crops, and for the river. This has had the direct effect of reducing the allocation available for general security in most years[10]. Although the reasons irrigators carry water over are reasonably clear, the final net benefit derived by those carrying the water forward are not well understood, as the volume carried over between seasons is large and remarkably constant between seasons.
2. **Trade downstream:** 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 in severe droughts. It has also enabled the development of high value orchards, without the development-expense of purchasing entitlements. That has generated benefits in terms of the value of production. However, the greater distance travelled from the water storage dam has also increased the volume of water required to be set aside to deliver that water. The growth in the quantum of this transfer water which needs to be 'set aside' has reduced the volume available for allocation to general security users.

[8] NSW, 2016. Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016.

[9] Greater than would have been the case if end of season balances were simply cancelled and all unused water returned to 'the pool' for all users next season.

[10] Concerns of the impact on NSW General Security entitlements, state carryover policies and underuse of allocations are well documented in the Interim Inspector-General of Murray– Darling Basin Water Resources 2020, Impact of lower inflows on state shares under the Murray–Darling Basin Agreement, Canberra.

3. **Rules based approach:** The wider management of the water resource is properly subject to clear and transparent rules between states, and between classes of water user. However, several of those rules were predicated on flow data from more than 100 years up to 2004 i.e. much more generous water resource scenarios, are now disadvantageous particularly to holders of general security entitlements. Examples include the level of flow into South Australia being triggered by the combined volume of water in storage at prescribed dates[11] and the Barmah-Millewa Forest Environmental Water Account[12]. A drying climate has led to growers holding more water in reserve through carryover, than was the case when underuse was socialised between all users. That means the storages are now fuller at any time of the year, which perversely then triggers higher prescribed flows rates to South Australia, to the disadvantage of NSW and Victorian allocations, and particularly NSW general security licence holders.
4. **High security:** As noted above, high security licences from the NSW Murray represented only 8.8% of the total allocated water resource - whereas general security represented 74.4%. Water resource reserve policies have been implemented since the run of record low monthly inflows during the millennium drought. These have provided a series of actions to further protect the interests of the high security licences to the disadvantage of annual croppers, who usually hold general security entitlements.
5. **Low risk approach:** This approach is evident in the adoption of increasingly risk averse reserves and allocation policies in all states, and by Snowy Hydro in regard to Snowy Hydro Limited releases - which result in lower and later allocations particularly to NSW general security licences. This has also become evident in far lower allocations and lower water use in seasons with relatively high inflows, where previously there was an opportunity for NSW annual summer croppers to recoup lower returns in drier seasons.
6. **Failure to conduct a meaningful review (and to act):** In the event that the success (or otherwise) of the water sharing instruments had been regularly and inclusively reviewed by Governments working with irrigators and communities; then the adverse and worrying impacts of trade and carry over may have been identified and incrementally rectified before patterns of use and underuse were locked in. This issue and the need for monitoring was most pressing in the wake of the rapid changes occurring after the millennium drought.[13]
7. **Disparity between states in stated security ratings:** The 2004 to 2020 experience[14] for the owners of entitlements contrasts markedly with the stated and recently reviewed Long Term Diversion Equivalent (LTDE) and subsequently raises serious concerns regarding the credibility of the factors applied by State and Commonwealth agencies when considering different water entitlement products. The factors established by Governments are intended to provide a valid basis for comparison and to guide purchasing decisions for water recovery agencies. Currently they do not.

---

[11] MDBA, 2020. Water Sharing in the River Murray: 'The calculation of state shares includes the shares (volumes) that each state holds in MDBA storage at the end of the month. The calculation includes volume stored and the remaining 'airspace' or volume left in storage for each state.'

[12] NSW, 2017. The Barmah-Millewa Forest was the first site along the Murray to be allocated an environmental water allocation, in 1997. A Sustainable Diversion Limit Adjustment was undertaken in 2017 to enable the allocation to be used more effectively.

[13] This is supported by NWI Inquiry 2017 Recommendation 3.1 (pg. 28):
(c) State and Territory Governments should develop a process to regularly assess the impact of climate change on water resources. Where this is considered to have been significant and detrimental, they should ensure that the next water plan review fundamentally reassesses the objectives of the plan (including environmental and consumptive) and the consequent balance between environmental and consumptive use of water, to ensure it is suited to a drier climate
(d) State and Territory Governments should ensure that, as water plans reach the end of their planning cycle, review processes are undertaken that allow optimisation of water use and system operation across all users, include explicit consideration of Indigenous cultural values, and involve adequate community and stakeholder engagement.

[14] For example, the LTDE for Victorian LRWS in the Murray System and Goulburn have increased recently to .54 and .58 respectively following a review of these factors by the Victorian Government in 2019. Despite a realistic expectation based on these factors of c. 50% average allocation levels, there has been a zero allocation for both LRWS products in each year for the last 16 years, except for a 5% allocation of Victorian Murray LRWS in 2016/17.

8. **The change in the environmental water value:** In theory, environment entitlements that are now held by e-water agencies, have exactly the same entitlement and allocation characteristic as those still held by irrigators. In practice, environmental water managers 'call-on' water from the storage dam to increase river flows and, due to the specific flow needs required to meet environmental objectives and outcomes, cannot always prioritise meeting environmental needs from the run of the river flows or coincide with utilising the run of the river to enhance flows.
   Therefore, the environment is getting not only the water that is within the system already (e.g. transportation flow, or extra flows caused by above minimum tributary inflows) that was in the past associated with irrigator's entitlement as allocation, but also the capacity to call on the full volume of announced or carried-over allocation available from the storage i.e. When water is called upon, the environment is sometimes benefitting from both the allocation associated with the allocation water called from water stored in the dam and any extra water that may be in the system as 'run of the river'. As a result, the difference created is the requirement for all water that is set-aside to achieve e-water aims is being sourced from the water storages, rather than from the first available water anywhere in the river system (to meet the demand for an irrigators diversion onto a farm). This is particularly noticeable in springtime each year (Sep-Nov) when the contribution of unregulated flows in key rivers that are able to meet irrigation demand are likely to be highest.
   Although quite difficult to calculate, as irrigator demand and within season time of use patterns change, the inability to supply e-water demands from run of river means there is more water needed to be stored to meet e-water demands. The premium may typically be 120% or 130%[15] of the volume needed in store to meet demand from irrigators holding the same number of entitlements. These risks and impacts adversely affect a large group of NSW irrigators (and sometimes the environmental water holders) as they reduce the relative security of their entitlements, and so the value of the 'products' that could be generated from their full utilisation. In addition, unlike irrigators, environmental water holders enjoy the benefits of higher reserves (or dead storage) through the increased incidence of dam spills in wetter sequences delivering increased uncontrolled river flows.

[15] This is a preliminary estimate, based on a spread of demand for irrigation water between spring, summer and autumn supply .

3 Diversity and resilience

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 dry 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 evidence[16] 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 Ha 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

[16] RMCG (2019) Recognising under-use in the Southern Basin – and taking action. Methodology and Analysis.

- The impacts of an unforeseen event on supply, such as a biosecurity incursion. For example: the *xylella fastidiosa* disease[17] has killed millions of olive and almond trees in Italy since 2013, and is now threatening those in Spain and Greece
- 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 production[18].

By protecting the interests of the unbridled expansion of permanent plantings, particularly irrigated almonds[19] 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 have been lost.

[17] Courthouse news (2019) "A lethal central American plant disease devastating olive trees in southern Italy is now killing almond trees in southern Spain, where tens of thousands of olive trees dying from an infection by the xylella fastidiosa bacterium. There is no cure for the disease".

[18] 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.

[19] 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.

4 Solutions

The next generation NWI needs to re-state the objective of 'promoting and maintaining an optimal outcome' in terms of social, economic and environmental outcomes, by looking beyond the previous NWI aims and addressing wider and more complex outcomes.

Ideally, a renewed NWI will recognise how past achievements may now have over reached its aims, and should be concerned with the best possible ends, as much as with market driven means.

It is proposed that a staged exercise is required:

1. A specific recognition and commitment from Government that our scarce water resources should be used to generate and support diverse and resilient regional economies and communities with the largest viable geographic spread, i.e. a recognition that the market in water entitlements and water allocations may deliver both benefits and difficult to resolve legacies[20]
2. A review of the changed storage behaviour and yield versus reliability (curve)[21] that has now been created as a direct result of the changing policies around high security reliability and the use of carryover; to determine the shift that has occurred and attempt to establish an optimum point for overall social, environmental and economic benefit
3. An assessment[22] 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
4. The introduction of changes to promote these agreed revised objectives, which may include some sensible limits on inter-seasonal carry over and the trade in entitlements and allocations.

This submission does not suggest that there is a single solution that would instantly resolve the current adverse effects, nor that dry seasons occurring in series since 2002 have not been a large contributing factor. Rather, that a serious considered analysis is required to review and reform all current policies in the context of lower total water availability and to redirect their impacts to the new targets.

As a start, the program should focus on the priority policies (outlined in Section 2) and undertake the following:

- **Review the aims and extent of the use of carryover as a risk management tool.** As noted, 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. However, this practice generates suboptimal outcomes at a regional or catchment scale as it increases dead storage and reduces the volume of water actually employed in irrigated production. A rebalancing is required to provide added incentives to productive use of the available water. One solution may be to reduce current maximum carry over limits, or to ask the beneficiary to recognise the full financial cost of maintaining dead storage. As a result of the current settings and behaviours in place, a clear understanding of the shift in the security vs water allocation curve in each valley, through establishing the best point to meet the balance of needs and creating a shift in policies to deliver this outcome, is at the heart of successful water management.

---

[20] This is supported by the National Water Reform Inquiry Report (2017). Recommendation 9.2 Where Governments consider there are significant and rapid adjustment issues affecting communities as a consequence of water reform, the response should:
(b) consider all the factors affecting the community (not just water reform)
(c) target investment to developing the capacity of the community to deal with the impacts of structural adjustment
(d) be subject to monitoring and publicly reported evaluation of outcomes. Australian, State and Territory Governments should revise relevant provisions in the National Water Initiative to align with recommendations 9.2 (a) to 9.2 (d).

[21] Rosenberg, D. Yield v reliability is a well understood concept amongst water-managers and is best explained in a David Rosenberg lecture note: NRM+IWRM –Reservoir Operations Modelling and Yield-Reliability.

[22] 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).

- **Limit trade downstream where delivery limits have been met or exceeded.** Rather than waiting for devastating 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. 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.
- **Improve river operations efficiency.** Equally, clear incentives should be established to encourage adoption of greater delivery efficiency in river operations, which now appear to be requiring even more water[23] to 'run the river' to deliver water to irrigators. This may follow the example of the Computer Aided River Management system for the Murrumbidgee River (CARM) supply measure project.
- **Review rules-based approaches that prescribe a fixed volume for any purpose.** Many of the current rules based approaches to river management decisions need to be reviewed and revised to reflect the new water resource scenarios, including setting aside of prescribed volumes[16], the development of 'debts' for irrigators to repay in better seasons, and the regular 'flooding out' of rules based flows by large environmental releases. Despite the complexity and difficulty in reviewing some long-held rules-based river flows, a revision should form part of revised NWI objectives.
- **Best practice monitoring and compliance across jurisdictions.** In terms of unauthorised use or monitoring of diversions, the southern connected basin in NSW, Victoria and SA have had a long held culture and practice of high quality monitoring and metering of actual water use. Recent and well publicised failings in the largely unregulated river systems in the northern Murray Darling Basin must be corrected to underpin public confidence in the wider irrigation industry. In addition, the recent ACCC interim report[24] has highlighted a number of gaps and shortcomings in compliance, monitoring and reporting of both the water allocation and water entitlement markets. Much better price reporting and market information is needed for all participants in the connected marketplace.
- **Adopt modern risk management.** The resource allocation policies and their application need to be revised to reflect the wider aims and objectives of a revised NWI, ensuring that the scarce water resources are gainfully employed to generate the optimal outcomes in terms of regional economies and communities. That means recognising and committing to the interests of all licence holders, without undue emphasis on exceeding all delivery security targets in all years and the well-articulated concerns of High Security water holders. This approach could include, for example:
  - Allocating a higher volume at an earlier stage in the season in years of above average inflows to help meet the timelines for planting decisions of annual croppers, recognising that approximately 20% of the combination of carry-over available and allocations made will not be used in the current season, even if the season is extremely dry
  - Adoption of a policy other than the current zero risk policy regarding reserves, and the holding of large volumes in inefficient downstream weir pools & storages in the Greater Murray system, which preferentially guarantees absolute security of water for use on orchards and river-flow allowances over the interests of annual croppers.

[23] NSW Water Allocation Statement, released 17 August 2020. 'The end of July accounts indicates that 4,610 gigalitres (GL) of total shared Murray resource is available in the extreme dry (99thpercentile) case, of which about 2,000 GL is needed to run the system (incorporating South Australia's dilution entitlement and any shared resource which cannot be regulated).

[24] ACCC (2020) Murray Darling Basin water markets inquiry: Interim report.

References

- ACCC (2020) Australian Competition and Consumer Commission. Murray Darling Basin water markets inquiry—interim report. https://www.accc.gov.au/system/files/Murray-Darling%20Basin%20inquiry%20-%20interim%20report.pdf
- Almond Board of Australia. Australian Almond Insights (Statistics). https://industry.australianalmonds.com.au/almond-board/almond-insights/
- BOM water dictionary. http://www.bom.gov.au/water/awid/index.shtml
- Courthouse news (2019). Article: https://www.courthousenews.com/plant-disease-is-devastating-spains-almond-trees/
- Interim Inspector-General of Murray Darling Basin Water Resources 2020, Impact of lower inflows on state shares under the Murray Darling Basin Agreement, Canberra. https://www.igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf
- Murray Darling Basin Authority (2020) Water Sharing in the River Murray. https://www.mdba.gov.au/river-information/water-sharing
- NSW Farmers Association (2019). Article: Who owns Australia's land and water? http://www.nswfarmers.org.au/NSWFA/Posts/The_Farmer/Environment/Who_owns_Australias_land_and_water.aspx
- NSW Water Allocation Statement: NSW Murray and Lower Darling (17 August 2020)
- NSW (2016) Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016 (updated 21 June 2019) https://www.legislation.nsw.gov.au/#/view/regulation/2016/366
- Productivity Commission National Water Initiative Inquiry (2017). https://www.pc.gov.au/__data/assets/pdf_file/0007/228175/water-reform.pdf
- National Water Initiative (2004) Intergovernmental agreement on a national water initiative: Between the Commonwealth of Australia and the Governments of New South Wales, Victoria, Queensland, South Australia, the Australian Capital Territory and the Northern Territory. 2004. https://www.pc.gov.au/inquiries/completed/water-reform/national-water-initiative-agreement-2004.pdf
- NSW DPI (2018). Water reform technical report: Derivation of LTDLE factors in NSW. https://www.industry.nsw.gov.au/__data/assets/pdf_file/0019/162181/techncial-paper-derivation-technical-factors-nsw.pdf
- RMCG (2019) Recognising under-use in the Southern Basin – and taking action. Methodology and Analysis. https://investors.sunrice.com.au/FormBuilder/_Resource/_module/2weQNICYSUy13FE_jxQXvg/file/external-reports/RMCG%20Report.pdf
- SunRice (2019) SunRice submission to ACCC enquiry into water markets in the Murray Darling Basin Issues Paper (2019). https://www.accc.gov.au/system/files/Redacted_Water%20Inquiry%20-%20Submission%20-%20SunRice.pdf
- Rosenberg, David. Reservoir Operations Modelling and Yield-Reliability. http://rosenberg.usu.edu/classes/cee5460/Lecture-ReservoirOperations-StudentVersion.pdf.