

Socio-economic impacts in the southern Murray-Darling Basin



Implications for additional Basin Plan water recovery

*Cover image: Melissa Tylee – Department of
Environment, Land, Water and Planning*

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Victorian Basin Plan Water Recovery

Victoria is committed to meeting its obligations under the Murray-Darling Basin Plan. Victoria is on track to meet its share of the target of 2,750 GL of water recovery for the environment. This will be accomplished by southern basin states delivering an agreed package of environmental works and measures to achieve environmental outcomes equivalent to 605 GL of water recovery, by using environmental water more effectively. Victoria's works projects will ensure the long-term sustainability of areas of high environmental value and provide habitat refuges in a lower water availability future.

To secure the 605 GL of offsets through environmental works and measures, Basin states also need to deliver 62 GL of water for the environment under the Basin Plan's five per cent rule. Victoria is currently developing water recovery options with neutral or positive socio-economic outcomes to put forward up to 9 GL of projects towards the 62 GL requirement.

Victoria's approach has always been to meet Basin Plan commitments while minimising socio-economic impacts by reducing the impact to the consumptive pool available to water users and maximising environmental outcomes with the water available to environmental water holders. Victoria has been monitoring the socio-economic impacts of the Basin Plan and has continued to build understanding of the nature and extent of these impacts, particularly in the southern Basin.

The facts and figures regarding the socio-economic impacts of water recovery under the Basin Plan so far speak for themselves and southern Basin communities have raised concerns about additional water recovery. The analysis of efficiency measures in the Murray-Darling Basin commissioned by the Murray-Darling Basin Ministerial Council identified that on-farm and off-farm water recovery programs result in a range of both positive and negative socio-economic impacts (EY 2018). EY pointed out that there are potential negative impacts of water recovery projects on non-participants which flow into their communities and the Basin.



The Basin Plan allows for an additional 450 GL to be recovered, beyond the 2,750 GL target, through 'efficiency measures' – as long as it has socio-economically neutral or positive outcomes. It is important to acknowledge that the socio-economic impacts of an additional 450 GL of water recovered from the Murray-Darling Basin is likely to be quite different to the impacts experienced from the water that has already been recovered under the Basin Plan so far due to the large and rapid changes that have occurred in Basin communities to date.

There has been close to three decades of efforts by individuals, water corporations and governments to improve water use efficiency in Victoria. These past efforts mean that the most cost effective and low impact water recovery projects have already been implemented.

The experiences of governments in recovering water for the environment so far and evidence of socio-economic outcomes in Basin communities should form the basis of additional water recovery efforts. This document summarises the socio-economic impacts that have been identified from Basin Plan water recovery so far and socio-economic criteria which address those impacts to ensure neutral or positive socio-economic outcomes from additional water recovery.



The impacts seen to date

Irrigation districts are less viable

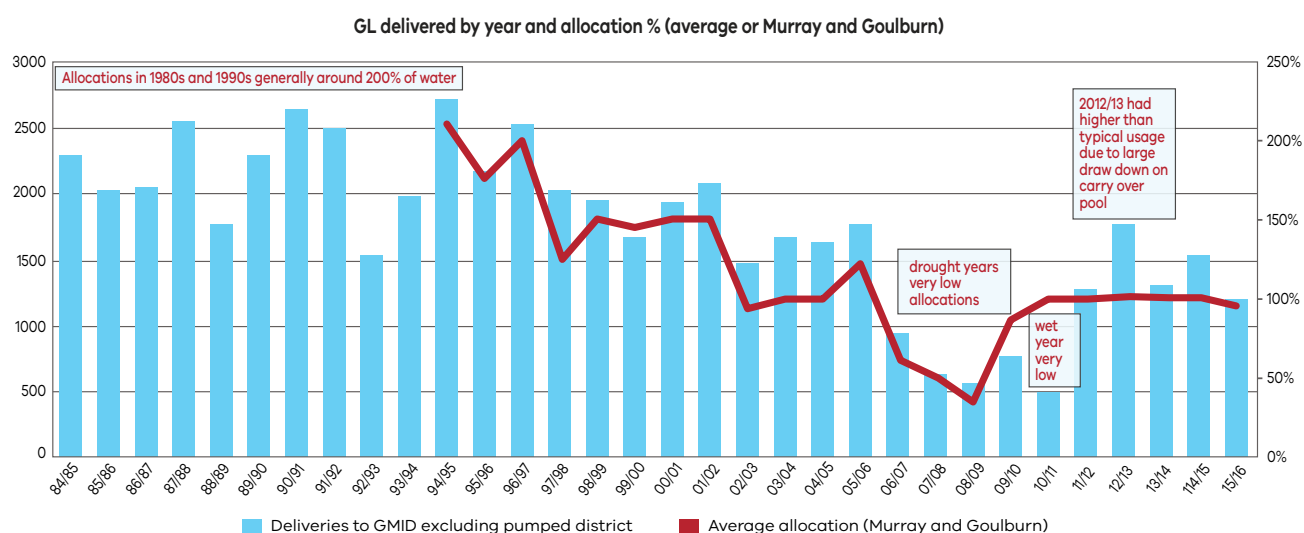
RMCG (2016a, 2016b and 2017) outline a range of impacts for the Goulburn-Murray Irrigation District (GMID) and its regional community from the Basin Plan. There has been a 40% reduction in long-term average deliveries in GMID (Figure 1) and a corresponding drop of 50% for Murray Irrigation Limited.

On top of this, TCA and Frontier (2017) show that horticulturalists outside the GMID who sold water to the Commonwealth through buy-backs have continued to irrigate, relying on water that would otherwise have been used in the GMID or NSW Districts.

Between 2001 and 2015, there was a 540 GL reduction of high reliability water entitlements tied to land in the GMID. These reductions have been scattered throughout the GMID, rather than being concentrated in discrete areas. This volume is greater than the volume of all high reliability water entitlements held in the Murray Valley and Loddon Valley Irrigation Areas in 2001.

Because the changes in GMID irrigators' water demands are spread throughout the infrastructure network, opportunities to rationalise the network are hard to identify and achieve. This means that the fixed costs of running the network must be maintained by a smaller customer base. TCA and Frontier (2017) contrast this with the experience of closing down the entire Campaspe Irrigation District after five years of very low or zero allocations. Communities were engaged with the decision and alternative arrangements were able to be made for those who wished to remain irrigating. Residual issues are now at a minimum and rationalising a part of the system brought down the ongoing costs for other customers.

Figure 1: Water deliveries in the GMID - 1984/85 to 2015/16 (RMCG 2016a)



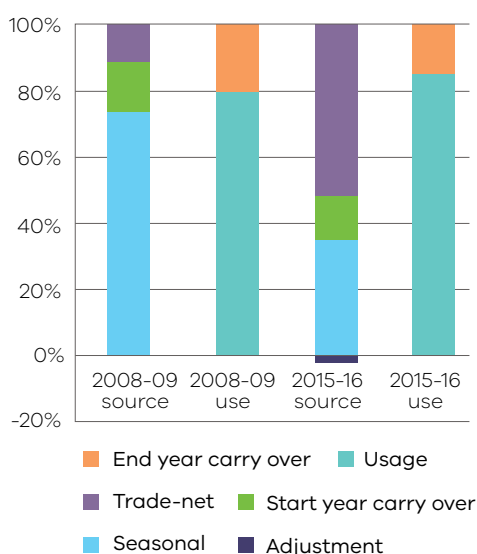
Irrigators are more dependent on allocation purchases

Victorian Water Register data analysed by TCA and Frontier Economics (2017) shows that many of the horticulturalists who sold water to the Commonwealth have continued to irrigate by purchasing allocations. Despite the reduction in the water available for irrigation, demand from horticulture has increased. Additionally, many dairy farmers who sold entitlements during the buybacks are now relying on allocation purchases to support their businesses.

TCA and Frontier's (2017) examination of data from the Victorian Water Register also showed that those who sold entitlements to the Commonwealth, but remained in farming, increased their reliance on allocation purchases in the 2015/16 season:

- From 11% of water use to 52% across the sample of 2008/09 sellers
- From 12% of water use to 39% across the sample of 2009/10 sellers (Figure 2)
- From 3% of water use to 26% across the sample of 2010/11 sellers.

Figure 2: Percentage water sourcing and use before and after selling entitlements to the Commonwealth for sample of sellers who participated in 2009/10 buyback (TCA and Frontier Economics 2017)



Similarly, Aither (2017b) cite a survey by the Goulburn-Broken Catchment Management Authority which showed a statistically significant relationship between those who have implemented on-farm irrigation upgrades and those who are reliant on allocation trade for their water use.

This increased reliance on allocations has increased the exposure of these businesses to fluctuations in the allocation market which are driven by climatic variability and demand patterns.

Allocation prices have gone up – exposing irrigators to more risk

Aither (2017a) and others, including RMCG (2016b) argue that the Basin Plan has also led to an increase in the price of water in the allocation market. They point out that is a particular impost on the regional economy because irrigators in the GMID are on balance buyers rather than sellers of allocations in average years because they are now more reliant on allocation purchases than they were before the Basin Plan. This leads to greater risks for the dairy sector in dry years.

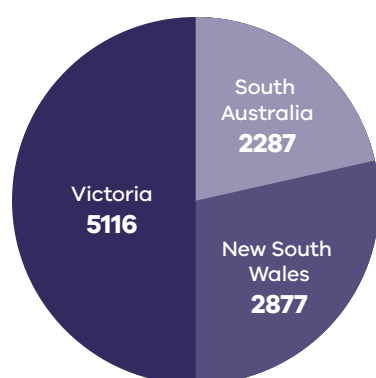
RMCG (2017) consider that water recovery has increased the future vulnerability of the dairy sector, because the volume of water available to dairying in a drought year will now only be 26% of the volume available in an average year, and dairy farmers are being pushed towards more complex feeding systems (TCA and Frontier 2017). In the Millennium Drought the dairy sector suffered when it had access to 50% of the average allocation.

This change is due to a combination of the Basin Plan and the continued expansion of the horticultural sector. The result is that the impact of the next drought will be twice as severe in the irrigated dairy industry as the last one; with horticulture now needing a larger slice of a smaller pie. Horticulture will account for 75% of the available water in the next drought compared with the 40% it used in the Millennium Drought. As will be discussed further below this also increases risks for horticulturalists.

Employment supported by irrigated agriculture has reduced

The MDBA's Southern Basin Community Profiles (MDBA 2018) and further analysis by the Victorian Farmers Federation (VFF) (2018) demonstrate a considerable reduction in the agricultural workforce since 2001 in the southern Murray-Darling Basin with the most substantial losses being in Victoria (Figure 3).

Figure 3: Agricultural full time job losses in the southern Murray-Darling Basin since 2001, drawn from VFF (2018) analysis of MDBA Southern Basin Community Profiles (2018)



The largest proportional job losses have occurred in the irrigation and agricultural manufacturing workforces of northern Victorian, where 789 jobs were lost, and southern NSW, where 194 were lost, as a result of the Basin Plan.

The MDBA Community Profiles (MDBA 2018) show that Victoria's irrigated agricultural workforce shrank between 2001 and 2016, and the regional reductions varied between 28% and 76%. In southern NSW job losses in irrigated agriculture varied between 22% and 84%. There was no clear trend in job losses during the Millennium Drought or during the Basin Plan, but the expected recovery in jobs after the Millennium Drought did not occur, in fact the MDBA analysis shows that job losses continued in many areas.

Job losses in irrigated agriculture were greater than the job losses in dryland agriculture (Table 1). This suggests that water recovery is a significant cause of job losses in irrigation.

Table 1: Reduction in agricultural employment and irrigation employment in Victorian communities. Derived from the MDBA's Southern Basin Community Profiles (2018)

Region	Reduction in agricultural employment between 2001/16 (%)	Reduction in irrigation employment between 2001/16 (%)
Cobram	32.0%	40.1%
Kerang - Cohuna	30.8%	43.0%
Kyabrum - Tatura	32.1%	41.6%
Pyramid Hill-Boort	47.0%	66.5%
Rochester	29.0%	41.8%
Shepparton	49.0%	60.8%
Swan Hill	42.6%	53.0%
Colignan	26.5%	28.5%
Merbein	41.0%	50.4%
Mildura	26.6%	38.6%
Red Cliffs	65.9%	76.2%
Robinvale	40.7%	39.1%

The MDBA's Community Profiles (MDBA 2018) show that, except for Swan Hill, Robinvale and Mildura, there have been large job losses in Victoria's agricultural manufacturing between 2011/16, and most manufacturing is associated with irrigation produce. Even in Swan Hill, Robinvale and Mildura, where there has been an overall increase in agricultural manufacturing jobs, there were large losses between 2011/16 coinciding with the Basin Plan. The reduction in agricultural manufacturing can be expected to have flow on effects to local towns.

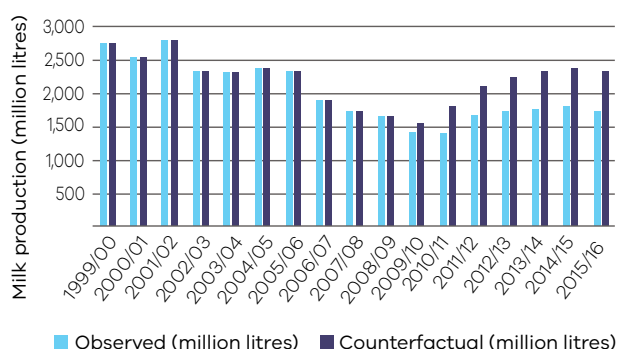
Similarly, in Berrigan-Finley, Coleambally, Coomealla, Wakool and Wentworth there were large job losses in NSW's agricultural manufacturing between 2011/16. Even in Hay, where there has been an overall increase in agricultural manufacturing jobs, that increase mostly predates the Basin Plan, and in Yanco where there has been an overall increase, 14.4% of jobs were lost between 2006 and 2016.



Irrigated dairying has been diminished

The MDBA Community Profiles (MDBA 2018) and analysis by TCA and Frontier Economics (2017) identify significant reductions in milk production in northern Victoria. The reductions between 2001/07 are in part attributable to the Millennium Drought, but the expected post-drought bounce back did not occur, despite a period of relatively high water availability in the southern Basin (Figure 4). Water recovery under the Basin Plan has contributed to the lack of recovery in production. This is evidenced by contrast between the reduction in milk production in the Murray with the relatively stable production in other Victorian dairy regions.

Figure 4: GMID milk production - observed and counterfactual (without Basin Plan) (TCA and Frontier Economics 2017)



Horticultural industries are more exposed to drought risks

Even though horticulturalists throughout the southern-connected Basin sold significant volumes of entitlement to the Commonwealth, TCA and Frontier Economics (2017) found that total water use on horticultural crops was unaffected by the Basin Plan. This means that horticulturalists have been buying water from other irrigators to maintain their production, having significant impacts on those other industries.

However, although horticultural water use has not gone down, because the Basin Plan reduced the size of the consumptive pool, Victorian horticultural demands as a proportion of full allocations against Victorian High Reliability Water Shares have risen from 32% without the Basin Plan to 40% with the Basin Plan. The Basin Plan has therefore constrained further investment and increased the risk of horticultural land being dried off in the next drought. TCA and Frontier (2017) also explain that this risk would increase further if additional water is recovered from the consumptive pool for the environment.

Rice production is becoming more episodic

The most significant NSW impact has been on annual cropping sectors, in particular rice, where production has decreased by nearly 30%. The increase in allocation prices is making irrigated annual summer crops less viable and increasing the likelihood that allocations will be sold out of the area rather than used in production, thereby further reducing average economic activity in both the irrigation sector and the services sector (RMCG, 2017).

RMCG's (2017) figures suggest that reducing the size of the consumptive pool by 20% increases prices in average seasons from \$130/ML to nearly \$200/ML. That increases the number of years when rice-growers will sell allocations, rather than grow rice, from seven years out of 20 to more than ten years out of 20.



Any additional water recovery must take account of these observed impacts

The 'participation test' of neutral or positive socio-economic outcomes in the Basin Plan focuses on the individual water users who directly choose to participate in water recovery projects. The outcomes of the Murray-Darling Basin Ministerial Council in June 2018 – identifying the need for socio-economic criteria beyond participation – recognises that this is too narrow an interpretation of the potential socio-economic impacts, because it does not account for the impacts of water recovery on people who are not direct participants.

Aither's (2017b) review of socio-economic neutrality for the NSW Department of Primary Industries describes Commonwealth guidelines on socio-economic impact assessment and suggests that to meet the overarching intent of the Basin Plan it is important to consider:

1. Impacts on people who are not directly participating in the program
2. Impacts that are a result of the cumulative or aggregate implementation of entire programs
3. The distribution of impacts across stakeholders.

The Basin Plan identifies that additional water recovery up to 450 GL through 'efficiency measures' must have neutral or positive socio-economic outcomes. Based on the socio-economic impacts that have been experienced by Basin communities to date, Victoria and New South Wales have agreed on their position on socio-economic criteria beyond participation for eligible project applications to ensure that the intent of the Basin Plan is achieved:

Applications must be public and project proponents must show that:

- **All potential cumulative impacts at a district scale are identified and any expected benefits are expressly stated**
- **The price of water does not increase directly as a result of the project**
- **The project contributes to the current and future financial viability of irrigation districts**

- **The project continues to support regional economies by not reducing any irrigation, or associated jobs both currently and in the future**
- **Participation in the project does not have negative third-party impacts on the irrigation system, water market or regional communities**
- **The project has community support**
- **Social and environment outcomes are identified and are improved or not negatively impacted**
- **Aboriginal values are identified and are protected and/or improved.**

These criteria have been chosen to avoid the negative socio-economic impacts Basin communities have experienced from the Basin Plan to date, and make sure that there are neutral or positive outcomes for communities from investment in additional water recovery in to the future.

Next steps

In coming weeks, the Commonwealth government will be undertaking a consultation process on the requirements for water recovery projects under their Murray-Darling Basin Water Infrastructure Program.

The outcomes of the Commonwealth's consultation will inform discussions on socio-economic criteria for additional water recovery at the Murray-Darling Basin Ministerial Council meeting in December 2018.



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