



*Australian Dairy Industry Council Inc.*

# **ADIC Basin Response**

submission to

Murray-Darling Basin Authority

Guide and Technical Background volumes

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## ***Introduction***

On behalf of our industry stakeholders the Australian Dairy Industry Council (ADIC) welcomes the opportunity to provide a submission to the Murray-Darling Basin Authority (the Authority) on its *Guide and Technical Background to the Proposed Basin Plan*.

The dairy industry is the main irrigation based livestock activity within the Murray-Darling Basin (the Basin) and operates in all four Basin States. Across the Basin, dairy accounts for 17 - 20 per cent of the irrigation water used by agriculture.

Over 1,900 dairy farms and 24 dairy factories in the Basin produce and process over a quarter of Australia's milk production, generating annual farm gate sales of more than \$1 billion and products with an ex-factory value of more than \$3 billion. The dairy industry is the largest agricultural sector employer in the Basin with approximately 12,000 people engaged in dairy farming and milk manufacturing.

These facts highlight dairy's integral stake in the Basin and the importance of working with government to build a better Basin that can sustainably support farming families, regional communities and key environmental assets into the future. We understand that this will require further reform of water use within the Basin.

However successful reform cannot be unilaterally imposed. It requires close cooperation between all parties to develop a common understanding of the need for (and likely impact of) change, the alternative pathways to reform and the trade-offs associated with different options.

The Basin Plan will be an important element in this process of change and reform. However, the ADIC does not see that the Guide, as currently drafted, provides a base from which the Authority can develop a balanced plan that will help build a better, more sustainable Basin.

Instead, the Guide has created confusion and increased uncertainty among dairy farmers and their communities about the future availability and security of access to water in their regions.

The scientific analyses underpinning the Guides analysis are not fully developed. As presented, they inadequately explain what specific environmental outcomes (and non-flow outcomes) are intended to be achieved in key environmental assets throughout the Basin.

The use of end of system flows does not provide clear environmental outcomes nor explain what will be achieved in different catchments. This makes it difficult to comprehend what environmental benefits will be generated from specific Sustainable Diversion Limits (SDLs). It also makes it difficult to assess what options are available to optimise environmental water delivery in order to achieve desired outcomes with the least impact on communities.

The ADIC notes the public statements from Minister Burke about the importance of including social and economic outcomes and also the need for continued investment in infrastructure and environmental water use as a way of delivering savings. The ADIC welcomes these comments and trusts that many of the concerns we have about the Guide will be addressed by a more comprehensive process.

However we also note reports of conflicting advice from the Authority about the Water Act.

Whatever the case, the ADIC urges the Australian Government and Authority to develop a comprehensive planning process that aims for sustainability for all stakeholders and examines practical measures for achieving well-defined environmental outcomes.

*Some other key aspects of the Guide that are of concern from a dairy perspective include:*

### **Interceptions**

- It is inequitable that the Guide proposes severe reductions in water availability for irrigators who source their water from watercourse diversions and ground water, while exempting other water users.
- Developing ground water SDLs based on 2003-2008 usage does not appear to be science-based and is difficult to reconcile with the Guides stream flow objectives. It may also prevent licence holders from using current entitlements.

### **Impacts on supply reliability**

- The Guide proposals could potentially reduce supply reliability for irrigators. There is a lack of clarity around how required environmental flows will ultimately be sourced and managed. This is damaging to investment confidence.
- The Guide provides little information on how the supply reliability of entitlements will be affected and has only a cursory discussion on this issue in the Technical Background volume.

### **Inadequate socio-economic modelling**

- The proposed SDLs have widespread implications for families, towns, communities and industries. The job losses reported in the Guide appear to be gross underestimates, and do not address the costs of transitional change and adjustment within communities. As an industry that has successfully managed significant change in the past decade the dairy industry sees this process as crucial in developing a balanced Basin Plan.
- In the past decade, many dairy farmers in the Basin have increased debt to survive. Higher debt will reduce farm resilience in the face of further change which means the socio-economic costs of proposed reductions will be higher than the Guides modelling indicates.

### **Securing environmental water**

- The role of environmental works, water infrastructure and on-farm infrastructure work in cost effectively securing environmental water, has not been sufficiently explored in the Guide. There is also a need to better understand how changes in river operations may lead to improved environmental outcomes.
- Similarly, in establishing its SDLs the Guide does not adequately acknowledge the significant volumes of water that have already been secured from previous schemes such as The Living Murray, nor is it clear how these volumes will be utilised to help achieve the Plans objectives.

These issues highlight the need for a change of approach in developing the Basin Plan.

Achieving a sustainable basin requires a clear understanding and consensus on the Basin's environmental water requirements and careful consideration of all options for achieving this. This will only occur if the Plan is developed through an open, inclusive process that engages and values all partners in the Basin's future – government (Federal, State and Local), industry, service provider, experts in science and the environment and local communities. Given our record of successfully managing change and our position within the Basin, the dairy industry believes we can add significant value to this process.

Therefore, the ADIC calls on the Authority and the Federal Government to involve the dairy industry in the development of the draft Basin Plan and any associated reports that support the decision making process.

## ***Detailed comments***

### ***The Guide has created confusion and uncertainty***

The dairy industry is concerned that the release of the Guide to the proposed Basin Plan has increased uncertainty about water policy and decreased investor confidence. It is difficult to have confidence in the Guide when the evidence base is largely in '*... the medium confidence interval...which have not undergone any significant peer-review scrutiny*' (p. 38). The ADIC believes the proposed SDLs are not supported by research that would demonstrate defined environmental outcomes.

The Guide implies the indicative SDLs are based on minimal climate change scenarios. However, the Technical Background vol 2 of the Guide makes it clear the States will be required to develop future water resource plans to allow for:

*'... the most extreme dry (15-year) sequence in the dry 2030 climate model scenarios or continuation of the historic worst 10-year drought'* (vol 2, p 122).

The impact of the further climate change adjustments proposed by the Authority will further reduce the SDLs. It is worth noting the Authority's example of how the climate change adjustment could work uses 20 per cent as the likely reduction required under this climate change adjustment.

Also, the Guide provides little information on how the supply reliability of entitlements will be affected and volume 2 (pp. 215 *et seq*) provides only a cursory discussion on this issue.

Further, the Guide uses reductions in 'diversions' to illustrate the proposed SDLs. This provides little information to dairy farmers, who are more familiar with the number and volume of entitlements in their valley.

It is difficult to work out how the percentage reduction in SDLs will translate into reductions in water available to irrigators. Dairy farmers fear that these numbers are more likely than what appears in the Guide. For example, Table 1 below shows the likely reductions to water available to Victorian irrigators under the Guide.

Exempting interceptions, cities, towns and industries from SDL reductions means the proposed reductions to irrigators would become larger.

Table 1 shows the likely reductions to irrigators maybe as high as 79 per cent. This means that the socio-economic consequences to irrigators would be far in excess of the maximum proposed by the Authority.

Going forward the Authority needs to acknowledge that urban and water for distribution losses is unlikely to be available for purchase. Therefore the volume required to be purchased from irrigators to achieve its objectives will be higher than the SDLs proposed.

**Table 1: MDBA proposed Sustainable Diversion Limits for Victorian regions – the actual reductions**

System	Total Water Course Diversions <sup>1</sup> (does not include interception)	SDL reduction proposed by MDBA <sup>2</sup>	SDL reduction % <sup>3</sup>	Water unlikely to be available for purchase		Diversions accessible for reduction (ie. urban & distribution losses excluded)	Likely reductions to water available to irrigators
				Urban <sup>4</sup> GL	Distribution system losses GL		
	GL	GL	%			GL	%
Goulburn	1593	442 - 593	28 - 37	44	360	1189	37 - 50
Murray	1656	442 - 592	27 - 36	58	440	1158	38 - 51
Broken	14	5.6 - 6.1	40 - 44	2		12	47 - 51
Loddon	95	38 - 43	40 - 45	2		93	41 - 46
Campaspe	115	40 - 52	35 - 45	47		68	59 - 76
Ovens	25	10 - 11	40 - 44	11		14	71 - 79
Kiewa	11	4.4 - 4.9	40 - 45	1		10	44 - 49

The Guides approach to ground water SDLs may also cause confusion in some regions.

In the Guide, the Authority suggests that current diversion limits of 67 ground water systems have been assessed as reflecting an environmentally sustainable level of take. Consequently no reduction is proposed. Yet for Victorian ground water regions, the SDL will be capped at 'current use' (p 142). As most ground water users in these regions have not fully used their entitlement in given years, capping ground water to current use would appear to reduce irrigators' rights to use their full entitlements.

The approach of determining SDLs by levels of use from 2003-2008 is not science based and is a simple volumetric calculation. Setting ground water SDLs based on use is inappropriate because recent use is not necessarily an indicator of sustainable yield of a ground water systems, nor does it bear a clear correlation with the Guides stream flow objectives.

## ***Interceptions***

The Authority plans to account for surface water interceptions within each SDL. In effect this decision reduces the volume of water available for 'watercourse diversions' (use by cities, towns, industries and irrigators who source their water from rivers) by 2,735 GL or about 20 per cent.

The Authority argues that 'practical difficulties in implementing reductions in the interception component' (p. 108) means that States will apply SDL reductions to watercourse diversions first. In essence, the Authority is exempting interceptions from reductions in SDLs and applying to the full SDL reduction to watercourse diversions.

Introduction of a 'price for carbon' (proposed by the Federal Government) is likely to lead to an increase in forestry plantations and related interceptions. Consequently, it is likely that future revisions of the Basin Plan will increase estimates of interceptions by forestry plantation and further reduce watercourse diversions.

It is clearly inequitable that the Guide proposes severe reductions in water availability for irrigators who source their water from watercourse diversions and ground water, while exempting other water users.

Investments in the upper catchment to reduce interceptions can increase water availability for all water users. For example, small stock and domestic dams can evaporate more water in a year than they store. 'Fair weather' dams can fill and evaporate several times in a year. There are likely to be cost-effective water savings if several small dams were replaced with one large dam and a reticulation system.

<sup>1</sup> Murray Darling Basin Authority- Guide to the proposed Basin Plan, Pg 132-134

<sup>2</sup> Ibid

<sup>3</sup> Ibid

<sup>4</sup> Northern Region Sustainable Water Strategy, Pg 182. The proposed SDLs apply to all consumptive water use, including water used by cities, towns and industries as well as irrigation.

## ***Impacts on supply reliability***

In theory, the buyback of water entitlements should not affect supply reliability for entitlements retained by irrigators. However, the dairy industry believes there are at least three elements of the Guide that could potentially reduce supply reliability for irrigators:

- Basin States will be required to build reserves for critical human needs. Potentially, the building of such reserves could reduce the volume of water available for other consumptive purposes, and so reduce supply reliability during the period the reserves were created. Similarly, if such reserves are subsequently drawn upon, supply reliability may be affected when reserves are being replenished.
- There is a paucity of information on how the Authority will manage many key river management functions once the plan is introduced. Some changes could potentially impact on supply reliability for irrigators. One potential issue could be how airspace in reservoirs will be managed to accommodate water held on behalf of the environment. Supply reliability for irrigators could be reduced if, for example, storage of environmental water was given a higher priority than storage of 'carryover' water. Similarly, supply reliability for irrigators could be reduced if achieving a more natural annual flow pattern in rivers came at the cost of rationing water to irrigators in periods of high summer demand for irrigation water.
- There is little information on how the Authority will apply the new 'principle of equitable sharing of any reductions in water availability between consumptive and environmental uses' will be applied. If 'equitable sharing' is solely achieved by buyback of entitlements, there may be little impact on supply reliability. However, if 'equitable sharing' was achieved by reducing allocations, there must be a reduction in supply reliability.

The *Water Act* (Sects 80 - 86) requires the Authority to identify changes in supply reliability caused by the Basin Plan, and make payments to irrigators where supply reliability is decreased.

The Authority should immediately model the likely impacts of proposed changes on supply reliability.

## ***Impact on investment and loss of asset values***

The uncertainty created by the release of the Guide is likely to cause a significant reduction in investment confidence within the Basin, both on-farm and in water dependent businesses.

The combined consequence of an increase in uncertainty and a reduction in investment will be a reduction in asset values on and off-farm. The Guide acknowledges that house and land prices have already fallen by up to 20 per cent (p. 124). The additional uncertainty created by the release of the Guide will cause further falls in house prices. If the further reduction in house values caused by the Basin Plan were just \$10,000 per household, the loss of wealth to Basin communities would be about \$5 billion (assuming approximately 500,000 households in the Basin). The *Water Act* does not provide for compensation for losses in land values for regional communities.

A further concern is the potential impact of SDLs on water charges. Volumetric charges in water districts are likely to increase and these increased water charges must reduce the profitability of irrigated agriculture.

## ***Lack of socio-economic modelling***

The dairy industry believes that the Guide provides insufficient information to allow a socio-economic assessment of the likely impacts to be undertaken. The Guide provides inadequate information about the likely reductions in SDLs when climate change is fully accounted for, and no meaningful information on likely changes in supply reliability of water entitlements.



The ABARE - Bureau of Rural Sciences report (p.61) warns:

*The main Water Trade Model (WTM) results presented in the ABARE–BRS report and the short-run results discussed above are based only on annual average levels of water availability. In a more realistic scenario where water supply is highly variable between years and where the SDLs may have differing effects on availability under different conditions, the short-run effects of the SDLs may be significantly different.*

*A key assumption made in both the short-run and variability WTM analysis is that the SDLs result in equal percentage reductions in water availability under all conditions (for example, wet, normal or dry). In practice, the effect of the SDLs under different conditions will depend on the nature of the environmental watering requirements, and the way in which the jurisdictions satisfy these requirements. It is possible to construct a feasible scenario in which the SDLs/environmental requirements could result in very large short-run effects on irrigated agriculture. For example, considering the case of a very dry year where the minimum stream flow requirements are absolute and non-flexible, it may be that a very high proportion of available water is used by the environment, leaving little, or potentially no, water for irrigated agriculture. In this event, critical water stress thresholds may be breached, resulting in destruction of perennial tree crops.*

Clearly, such a ‘feasible scenario’ could impose unacceptable economic costs on the dairy industry. If such ‘feasible scenarios’ were repeated on a regular basis the uncertainty created by such variability could severely reduce economic incentives to invest in food processing industries within the Basin. Decreased supply reliability could also reduce economic incentives to invest in water-efficient technology.

The dairy industry is concerned that the socio-economic modelling undertaken to date has excluded consideration of the climate change scenarios required in State water resource plans, and impacts of potential changes in supply reliability.

The analysis fails to examine how adverse impacts of SDLs particularly worst case scenarios can be mitigated by targeted and coordinated water recovery programs.

### ***Impact on dairy communities***

A recent study by RMCG consultants investigated the impact of the recent drought on non-farm businesses within a dairy industry community reliant on irrigated agriculture. This study analysed how the town would respond to future water scenarios.

The results showed that successive years of low water allocations combined with a difficult operating environment had a significant impact on businesses. 75 per cent of businesses interviewed had experienced up to a 35 per cent decline in turnover due to the reduction in agricultural activity.

Most businesses had effectively modified their practices to mitigate the impact of the drought however they believed that no further opportunities existed and further change would simply be taking market share from a business competitor.

Many of the smaller businesses have reduced labour and are now relying on more input from family members. Family energy reserves have been depleted and are not sustainable.

If the economic activity of the past few years continues, communities will be in trouble and come under significant economic pressure as 20 per cent of businesses indicated they would close if the operating environment does not improve. This economic pressure will exacerbate human stress and health impacts, and undermine the community fabric.

A survey by the NSW Department of Industry and Investment indicated that within the Murray region, dairy farmers spend two thirds of their income in local communities and that each dairy farm employed

5.5 people, including the owner. The Marsden Jacob Associates report to the Authority in 2010 concluded that farmers spend 75 per cent of their income in the local community and 25 per cent in the larger nearby regional centres.

The survey found the number of dairy farms in most regions was relatively small compared to other irrigated industries. Despite this individual dairy farm businesses made a greater relative contribution to the regional economy due to the level of business turnover. Dairy farmers are major clients of service industries and this demand provides flow through benefits to other industries and the community. For example in the Wagga Wagga region the dairy industry is a small player in regards to dairy farm numbers but a Murrumbidgee dairy farm is one of the twenty largest clients for a major rural merchandising business in Wagga Wagga. The demand for services such as veterinary surgeons, refrigeration experts, electricians and agronomists has a flow through impact at a community level which in turn has a big impact on the economic activity within the valley.

Dairy farms are also reliant on production from other irrigated industries including grain and fodder production and by products from the horticultural industries. Dairy farms outside of the Basin are also reliant on grain and fodder production from within the Basin.

These studies demonstrate the need for the Authority to conduct additional social and economic studies into the likely impacts of the proposed Basin Plan on local communities.

### ***Alternative approaches to securing environmental water***

The dairy industry believes the best way to secure environmental water is through environmental and on and off farm infrastructure works. The focus must be placed on increasing efficiency for delivery of water for the environment as well as on-farm irrigation upgrades to obtain water savings. This will ensure that all water is used efficiently and effectively.

For example, environmental works on Lindsay Island could cut the volume of water needed to flood the island wetlands by over 1,000 GL for only an investment of \$43 million. The Lindsay island project is a very inexpensive method of achieving more than 25 per cent of the proposed reduction in diversions, and would have socio-economic benefits, not costs.

Similarly, Northern Victorian Irrigation Renewal Project (NVIRP) demonstrates that refurbishing existing delivery infrastructure, with associated on-farm infrastructure can recover significant volumes of water, whilst providing socio-economic benefits.

The dairy industry welcomes the Federal Government's commitment to fund stage 2 of NVIRP as this project is important in providing for the resilience and adaptability for those who will be in it for the long term.

In contrast, the current reliance on buyback mechanisms has the potential to have large socio-economic costs.

Also, it is important that the Federal Government provides further clarity on how the buyback arrangements will apply to ground water.

The dairy industry is concerned that the Authority proposes the climate change component to be 3 per cent of current diversion limits for surface water. This means that dairy farmers may be required to give up 3 per cent of their water entitlements which reduces asset values without receiving any compensation. Climate adjustment will lead to a further reduction in water availability that will compound socio-economic costs.

## ***Appendices***

### ***Dairy across the four Basin States***

The following is a State by State summary which further breaks down the statistics of the dairy industry in the Basin regions.

#### **Queensland**

The dairy industry in the Queensland Basin area covers the Condamine-Balonne and Border Rivers, and production focuses on drinking milk and fresh products for local regional consumption including Brisbane and the Gold Coast.

There are 176 dairy farms in the region which are essentially family operated businesses and they produce 212 million litres of milk from 44,500 cows. The milk is supplied to four factories located within south-east Queensland and northern NSW.

There are 1,250 people directly and indirectly employed in the dairy industry.

The farm-gate value of production in 2009/10 was \$125 million which accounts for half the value of dairy production in Queensland.

In the region, ground water is the major source of irrigation plus un-supplemented creek and river access. The area of farm size under irrigation ranges from 50 – 80 ha with an average annual irrigation allocation per farm of 144 ml. Total irrigation use in the Queensland Basin region is 10,250 ml.

#### **New South Wales**

The Basin has become an increasingly important part of NSW dairy production in recent decades. Dairy farms in the Basin supply a range of processors that focus on both regional (includes Sydney) drinking milk and fresh products and export markets.

The dairy industry in New South Wales Basin area covers the Central Murray, Lachlan, Murrumbidgee, Macquarie and Namoi river regions. The Central Murray area has the largest number of dairy farms (105).

In the NSW Basin region the average farm milks 300 cows on 130 ha with 100 ha under irrigation.

The farm-gate value of production in 2009/10 was \$153 million which accounts for 37 per cent of the value of NSW milk production.

There are 1,800 people directly and indirectly employed in the dairy industry.

Ground water is an important source of water for dairy farmers in the Namoi and Lachlan river basins, representing between 55 – 60 per cent of total water consumption. The Macquarie, Murrumbidgee and Murray regions are more reliant on surface water.

Most dairy businesses in the NSW Basin region have a high dependence on irrigation for their operations.

Dairy farms in the region have, and continue to adopt new technologies in irrigation, including laser levelling and automated irrigation layouts, efficient herd management practices and rotary dairy systems.

#### **Victoria**

The dairy industry in northern Victoria is the largest industry in the region and supplies 20 per cent of Australia's milk. Milk production is focused on manufactured products, of which, a large proportion is annually exported.

The dairy industry in Victorian Basin area covers the Central Murray, Goulburn, Broken, Campaspe and Kiewa river regions.

There are 1,464 dairy farms in the region which produced 1.9 billion litres of milk in 2009/10 from 380,000 cows. The milk is supplied to fourteen factories.

In the Victorian Basin region the average farm milks 245 cows on 160 ha with 96 ha under irrigation and uses 5 ml/ha of irrigation water.

The farm gate value of production in 2009/10 was \$644 million which accounts for 56 per cent of the value of Victorian milk production.

There are 8,000 people directly and indirectly employed in the dairy industry.

Water use by source in 2008-09 was 84 percent surface water and 14 per cent ground water.

Victoria is an active participant in irrigation modernisation projects designed to deliver water benefits for community and the environment. The Northern Victoria Irrigation Renewal Project (NVIRP) is the most significant upgrade to the region's irrigation infrastructure with automated technology and repairs to outdated channels dramatically improving water delivery and efficiency. It will spend \$1 billion by June 2013, and will automate the backbone channels in the Goulburn Murray Irrigation District, to deliver 225 GL of long term average water savings. It is anticipated that around 424 GL of water will be returned to the environment through various initiatives in the region over the next three years.

### **South Australia**

Irrigated agriculture is important to the South Australian lower Murray economy. Dairy farms in this region focus on supplying regional drinking milk and fresh product markets. The region also includes a number of specialty cheese manufacturing operations.

The dairy industry in the SA Basin area covers the Lower Murray and Eastern Mount Lofty Ranges regions and has 116 dairy farms. The Lower Lakes area has the largest number of 70 dairy farms.

In the SA Basin region the average farm milks 300 cows on 240 ha with 61 ha under irrigation. The Lower Murray region produces 138 million litres of milk from 35,000 cows and is supplied to four milk factories.

The farm gate value of production in 2009/10 was \$47 million which accounts for 31 per cent of the value of SA milk production.

There are 1,000 people directly and indirectly employed in the dairy industry.

Irrigated dairy farmers in SA are heavily reliant on surface water but in recent years have had issues accessing river water because of low levels in the Murray River channel. Dairy farmers in the SA Basin region consume around 4 per cent of all irrigation water used by dairying in the Basin.

Irrigation infrastructure and management is a major issue for SA dairying. There is scope for expansion if water levels return and irrigation assets are protected.

Riverland irrigators will receive around \$1.6 million in Commonwealth Government funding to implement on-farm irrigation infrastructure projects through the South Australian Murray-Darling Basin Natural Resources Management Board. This funding is part of the On-Farm Irrigation Efficiency Program.