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*Australian Dairy Industry Council Inc.*

Australian Dairy Industry Council

**Supplementary Submission**  
to the

House of Representatives Standing Committee on Regional Australia

***Inquiry into the impact of the Murray-Darling Basin Plan  
in Regional Australia***

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## Executive Summary

The Australian dairy industry supports a Basin Plan that promotes regional development and growth while at the same time delivering improved environmental outcomes.

However, the Guide, released by the Murray Darling Basin Authority last October will not deliver water and catchment management regimes that will be socio-economically sustainable as well as environmentally effective.

The draft Basin Plan must be developed according to the following principles:

### Key Principles

- **Equal weighting between economic, social and environmental objectives.**
- **Government investment guided by a strategic framework for agricultural industry growth.**
- **Maximise opportunities for regional development through industry growth, including consideration of the sustainability of water pricing.**
- **More time for industry and community engagement in developing the draft Basin Plan.**
- **Environmental water recovery and watering plans based on scientific evidence.**
- **That all key environmental facets are included in the Basin Plan ie. soil health, salinity.**

On the basis of these principles, the Australian dairy industry urges the Standing Committee on Regional Australia to recommend a new process with the following key elements:

### The way forward:

- **Establish a representative agricultural industry growth taskforce**, to advise Government on Basin development opportunities, and investment in strategic public/private/environmental infrastructure and farm innovation programs.
- **Establish locally representative catchment working groups** to develop the basis for economically, socially and environmentally relevant SDLs in each river valley and across the Basin. Expert technical and scientific advice to be provided by State and Federal agencies.
- Catchment working groups to recommend the locally appropriate mix of infrastructure solutions, strategic buyback and watering plans to achieve environmental outcomes that are based on sound scientific grounds.
- **Significantly extending the early 2012 deadline for finalising the Basin Plan** to enable the new process to be undertaken – particularly in the context of flood-affected regions requiring time to recover before re-engaging with the Plan.

In developing a better and more balanced Basin Plan, we need to recognise and learn from the lessons of the recent past.

The dairy industry, for example, has a wealth of practical experience in successful change management, gained by adapting to deregulation and drought over the past decade.

It has learnt that a) change takes time; b) public and private investment in structural adjustment is needed to make change actually happen; and c) change needs local support.

After the Basin Plan is finalised, the implementation date for all States should be aligned to 2019 to enable an orderly and equitable transition. This will allow time for strategic water recovery, environmental infrastructure works, regional development investment and other structural adjustment to be undertaken and reflected in the new State Water Resource Plans.

The transition period will also enable research programs to be established to better define environmental objectives and water needs. This would ensure the Basin Plan is based on the 'best available' science, which is not currently the case.

The ADIC does not support the current approach to buyback. The purchase of water should only be taken following the assessment and integration of programs for on and off-farm water efficiency and environmental works.

The dairy industry and States are concerned that the proposed SDLs are based on restoring pre-settlement conditions, rather than the realities of a modern working river system. Given there are no plans to remove any of the many dams, weirs, locks, barrages and levies that regulate the Murray River and its tributaries, it is simply impossible to return to these conditions.

Instead, the SDLs should reflect environmental watering plans that build on State planning knowledge and initiatives and integrate the environmental water reserve already acquired through other Federal and State programs such as *The Living Murray* and *Water for Rivers*.

A research program would also address climate change uncertainty. As it stands, the MDBA has proposed enforcing an Equitable Sharing Principle under which in State Water Resource Plans would reduce diversions based on modelling for what *might* happen, rather than what actually happens.

Similarly, the dairy industry is concerned that the MDBA Guide proposes an arbitrary upfront 3% cut in diversions to account for what *might* happen with climate change. The basin planning process should take account of climate change impacts as part of subsequent plan reviews.

The ADIC believes that a plan for industry growth in the Basin is critical. Intrinsic in this is an understanding that annual water pricing (water rates) and temporary markets are not rendered unaffordable by the future Basin plan.

The scale and future economic contribution that the dairy industry makes in the long-term depends on how the Basin Plan affects water availability, reliability and affordability. With the recovery in water storages over the last 18 months, the industry is now well-placed to rebuild herds, reduce farm production costs, reduce debt and increase production back to pre-drought levels. However, this will not be possible without a more balanced and equitable approach to the Basin Plan.

## The Way Forward

The Australian dairy industry supports a Basin Plan that delivers improved environmental health while at the same time supporting regional development and growth.

The Basin Plan will drive the most fundamental change to regional Australia since the mid-1900s, yet the development process so far has failed to engage the very people who have the most at stake: the industries, farmers and communities who depend on healthy rivers.

In developing a better and more balanced Basin Plan, we need to recognise and learn from the lessons of the recent past.

The dairy industry, for example, has a wealth of practical experience in successful change management, gained by adapting to deregulation and drought over the past decade.

It has learnt that a) change takes time; b) public and private investment in structural adjustment is needed to make change actually happen; and c) change needs local support.

### *1. A new process*

In order to ensure the community and industries are properly engaged in shaping the draft Basin Plan, the dairy industry recommends a new process with the following elements:

- **Establish a representative Basin agricultural industry growth taskforce**, to advise Government directly on regional development opportunities, and investment in strategic public infrastructure and farm innovation programs.
- **Establish locally representative catchment working groups** to develop the basis for economically, socially and environmentally relevant SDLs. Expert technical and scientific advice to be provided by State and Federal agencies.

### *2. More time*

**It is essential that the Federal Government's 2012 deadline for finalising the Basin Plan is extended** to enable the new process to be undertaken – particularly in the context of flood-affected regions requiring time to recover before re-engaging with the Plan.

Having finalised the Basin Plan, the implementation date must align to 2019 for all Basin States to enable an orderly and equitable transition. This will allow time for strategic water recovery, environmental infrastructure works, regional development investment and other structural adjustment to be undertaken and reflected in the new State Water Resource Plans.

The transition period will also enable research programs to be established to better define environmental objectives and water needs, and to monitor socio-economic impacts as programs and projects are implemented.

Progressive findings from both research programs will assist in refining water recovery programs during the transition, and provide a solid basis for the first 10-year review of the Basin Plan.

### **3. Solutions**

The appropriate mix of programs and projects will vary depending on the circumstances in each valley, but will typically include the following:

#### **a) Strategic buyback from willing sellers**

The dairy industry does not support compulsory acquisition of water entitlements to achieve environmental outcomes, now or in the future. We call on the Federal Government to clarify its position, as recent comments suggest compulsory acquisition may be an option after 2019.

The ADIC does not support the current approach to buyback. The purchase of water should only be taken following the assessment and integration of programs for on and off-farm water efficiency and environmental works.

The Federal Government's buyback approach has so far assumed that price alone is the measure of whether the investment is delivering value for money. Unfortunately, the recently announced 'new approach', involving rolling tenders for smaller volumes, in practice means more of the same<sup>1</sup>.

The resulting 'Swiss-cheese' effect eats away at the critical mass of productive irrigated farms until there is too little water and farms are too scattered to maintain the economic activity needed to sustain towns, and ultimately the costs of running the irrigation system itself.

By any measure, this is a sub-optimal return on the investment of billions of dollars ostensibly to create a more economically, socially and environmentally sustainable Basin. Yet these buybacks have been the priority over investment in programs delivering water efficiency and regional development.

The buyback program must be integrated with the Federal *Water for the Future* programs for on and off-farm irrigation modernisation and environmental works. This will enable buyback to be undertaken in a strategic and targeted way that optimises the socio-economic and environmental returns on the Federal Government's \$12.9 billion *Water for the Future* fund.

Locating modernised infrastructure on the most suitable land and where pre-drought economic returns on the water are highest means irrigation activity will be concentrated in the areas where it is the most productive and cost-effective.

Non-strategic buyback, on the other hand, does nothing for the resilience and sustainability of agricultural industries. Unlike on and off-farm infrastructure investment, random buyback based on price alone does not create the foundation for prosperity in a future with less water.

#### **Diversify the buyback 'portfolio'**

In Victoria in particular, the Federal Government has targeted 'on call' water entitlements - that is, entitlements to water stored in dams in highly regulated systems that can be released to order.

These entitlements have various names in each State, but generally they fall into two categories: high and low reliability or high and low security. Irrigators own by far the most water held under these entitlements precisely because it can be delivered to order.

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<sup>1</sup> Pers. comm. SEWPaC to Dairy Australia, 21 February 2011.

The Federal Government's buyback program has almost exclusively targeted these entitlements, which means that irrigation industries, and dairy in particular, are disproportionately bearing the socio-economic brunt of this approach.

Yet, other types of water entitlements, or 'products' with environmentally significant attributes are also available in the same river catchments. For example, Victoria's 'take and use' licences and NSW's 'supplementary' and 'unregulated river' licences, give landholders access to water such as the flows from tributaries entering rivers below the big dams. In Queensland, water recovery programs must give some priority to unregulated river licences and water harvesting, as this accounts for 75% of entitlements in these catchments.

These licences may not give the Commonwealth Environmental Water Holder control over when the water is available and where it is used, but from an ecological perspective, maximising unregulated river flows by purchasing some of these licences will improve ecosystem and hydrological functioning on a daily and seasonal basis, as rivers will run more 'naturally'.

Using buyback to acquire a diverse portfolio of licence types will help to share the structural adjustment burden of reduced water availability more fairly, and better deliver some environmental outcomes than relying on high and low reliability entitlements alone.

*See Appendix 1: Water products across the Basin.*

#### **Strategic buyback – a case study**

The **Campaspe Irrigation District** within Victoria's Goulburn Murray Irrigation District will be decommissioned following an approach by its irrigators to the Northern Victorian Irrigation Renewal Project (NVIRP).

The approach was prompted by various factors, including a succession of zero allocation years and expensive remediation required for the Campaspe Weir, which led many irrigators to conclude that the future of their district in a climate change future was questionable.

Unlike the Federal buyback program, which focuses only on getting the cheapest water regardless of socio-economic impacts and stranded asset risks, NVIRP responded with a financial package that recognised the strategic value of decommissioning the district as a whole.

The benefits include around 14,000ML in high security water entitlement bought from irrigators, who also benefit from assistance to restructure properties for dryland farming.

Decommissioning the system will save around another 6000ML of water now lost to channel seepage, evaporation and outfalls. Modernising channels instead of decommissioning them would save substantially less water, as modernisation does not eliminate all losses, such as seepage and evaporation.

The ~22,000ML in purchased entitlement and saved water is more than the 18,000ML target in the Victorian Northern Region Sustainability Water Strategy for improving and maintaining good in-stream health in the Campaspe River.

NVIRP also saves the costs of installing modernised infrastructure across the district, while urban water authorities such as Central Highlands Water (Ballarat) benefit from airspace being freed up in storages to secure urban supplies.

Under the plan, irrigators who wish to remain irrigating are able to do so, and will be connected to the modernised GMID backbone in other ways.

The disappointing aspect of this case study is that NVIRP planned to sell the ~14,000ML of Campaspe entitlement to the Federal Government for the environment.

However, the Federal Department of Sustainability, Environment, Water, Population and Community (SEWPaC) is yet to recognise the triple-bottom-line benefits that justify paying a premium over current market price.



## **b) Recover water through investment in on and off-farm efficiency works**

**Off farm:** The \$2 billion *Northern Victorian Irrigation Renewal Project* (NVIRP) and the Colleambally modernisation project in southern NSW demonstrate how investing in infrastructure and new technologies can dramatically reduce losses in irrigation delivery channels.

Reducing system losses means more water available for other purposes. In Colleambally, the water savings were shared between the irrigators for productive use and *Water for Rivers* for increased environmental flows in the Snowy and Murray Rivers.

Stages 1 and 2 of the \$2 billion NVIRP are expected to deliver an annual average 425,000 ML in water savings, to be shared between irrigators in the form of additional licences entitlement (175,000ML), the environment (175,000ML) and urban users (75,000ML).

NVIRP is also delivering important additional environment benefits by installing infrastructure to ensure that good quality environmental water can be delivered to high-conservation value wetlands at times when it will maximise environmental outcomes.

Projects such as Colleambally and NVIRP are also an essential component of the structural adjustment assistance required to help Basin communities adjust and remain sustainable, viable and prosperous in a future with lower water availability.

**On farm:** Investment in off-farm water delivery efficiency works must be complemented by on-farm water efficiency investment, to ensure that farmers can take advantage of the improved water delivery service and reduce their water use on the farm as well.

Investment in on-farm works is an essential component of the structural adjustment assistance required for farms and Basin communities to remain viable, sustainable and prosperous in a future with lower water availability.

Due to the prolonged drought, many farmers have reduced capacity to borrow and invest. Assistance from Government for investment works will significantly enhance the rate of productivity improvement in the Basin.

## **c) Water-efficient environmental works and management**

The Guide to the Basin Plan has proposed SDLs on the basis of restoring pre-settlement conditions, rather than the realities of a modern working river system. Given there are no plans to remove any of the many dams, weirs, locks, barrages and levies that regulate the Murray River and its tributaries, it is simply impossible to return to these conditions.

Further, the Guide's use of 'end-of-system' flows as the benchmark for environmental health is not based on 'best available' science. SDLs based on 'end-of-system' flows are problematic because it is not possible to understand the specific environmental benefits provided by the new diversion limits, nor to investigate options to maximise environmental water delivery in ways that maximise ecological outcomes and minimise impacts on farms, industries and communities<sup>2</sup>.

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<sup>2</sup> Victorian Government submission on the Guide to the Proposed Basin Plan.

Delivering environmental water in the volumes anticipated in the Guide through overbank flooding is also impractical. Not enough water would be available in a repeat of the past 13 years of drought, and deliberate flooding at other times would cause substantial third-party impacts on private property with associated legal liabilities.

There is insufficient information released in the Guide to allow State agencies and stakeholders to understand how the Authority has determined environmental water requirements and the sustainable diversion limits for both surface and groundwater.

Some storage outlet structures are, in any case, physically incapable of releasing the suggested volumes. Further, as the recent flooding in northern Victoria shows, highly modified farming landscapes also change the direction and extent of overbank flooding in ways that can't be planned or predicted, adding to the distress of communities and landholders.

The SDLs should instead reflect environmental watering plans that build on State initiatives and integrate the environmental water reserve already acquired through other Federal and State programs such as the Living Murray and Water for Rivers.

These environmental reserves should offset the proposed SDLs because they already contribute to the improved ecological and hydrological functions required under the Basin Plan.

### **Environmental water reserves in southern connected Basin**

<b>Project</b>	<b>Amount (ML)</b>
Living Murray Initiative (works completed or underway)	500,000
Snowy Water Recovery Project (Murray component)	70,000
Victorian Flora and Fauna Bulk Entitlement	28,000
Loddon BE for Boort wetlands	2,000
NSW River Bank – Murrumbidgee (as of 30 June 2010)	21,300
NSW and Vic Barmah Millewa Forest Allocation	100,000
NSW Murray environmental reserve	33,000
Sub Total	754,300
Federal buyback (as of 31 January 2011)	663,300
<b>Total</b>	<b>1,417,600</b>

Such plans use measures such as piggybacking environmental water delivery with consumptive water, using environmental carryover and investing in cost-effective infrastructure works such as pumps, regulator gates and weirs to deliver environmental water even in the driest years.

It means the desired environmental outcomes can be achieved using significantly less water than would otherwise be required by overbank flooding or mimicking other pre-settlement conditions.

*See Appendix 2: case studies in environmental infrastructure works*

## ***SDLs impacts on the dairy industry across the Basin***

### **1. Murray Dairy region**

The Murray Dairy Region covers northern Victoria, including the Kiewa and Ovens valleys in the north-east, the Goulburn Murray Irrigation District (GMID) and the southern Riverina in NSW.

More than 1900 dairy farms are active suppliers in this region. Collectively, they hold a significant volume of water in entitlements. In the GMID, dairy farming is the dominant agricultural enterprise in

a matrix of land uses including horticulture, cropping and vegetable growing; historically, it has accounted for 56% of the water available.

Access to a reliable water supply enabled the Murray Dairy region to grow to be the largest dairy region in Australia, peaking at more than 3000 ML of milk produced in 2001/02 and making the region a manufacturing centre for export dairy products.

Eight towns (Rochester, Cobram, Kiewa, Stanhope, Echuca, Wagga Wagga, Tatura and Bendigo) are home to large processing facilities, with specialist facilities in another two towns, Tongala and Strathmerton. Several of these facilities are major local employers in small towns that do not have many other job opportunities.

In summary, dairy injects an average \$644 million a year into local economies, through farm-gate value of production, with 8000 people directly or indirectly employed in the industry.

**Making do with less water:** In the prolonged drought conditions of the last decade, dairy farmers adapted their practices to use less water. Changes included switching from perennial to annual pastures; greater use of supplementary feeding with grains, silage and other crops; and investing in precision surface irrigation.

While land use surveys reveal how practices changed, including previously irrigated land parcels being dried off<sup>3</sup>, the total number of dairy farms is approximately 19004, which is significantly down from ten years ago.

The impacts of drought has impacted on milk production and increased costs. Consequently between 1999/00 and 2009/10, average dairy farm debt grew by 46% from \$367,000 to \$538,000<sup>5</sup>.

How many farms survive in the long-term depends on how the Basin Plan affects their water availability, reliability and affordability. In turn, the future of processing in the region depends on productivity recovering from the drought low.

The three major processing companies – Murray Goulburn, Fonterra and Tatura – collectively process about 84% of milk collected in the Murray Dairy region. Their volumes reduced substantially during the drought, from 2718 ML processed in 2001-02, down to 1547 ML in 2009/10.<sup>6</sup>

Demand for Australian dairy products remains high so dairy companies seek milk supply growth to enable them to meet strong future demand and to improve cost recovery on fixed assets.

If dairy production cannot recover in the Basin then further rationalisation of assets will continue and this will have a profound effect on local towns.

The closure of the Leitchville cheese factory in March 2010 is a case in point, with up to 80 workers affected in the small northern Victorian town of just 300 people.

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<sup>3</sup> "Changing land use in the GMID 2006 – 2010". Report to VDPI and NVIRP by HMC Property Group July 2010

<sup>4</sup> Sources: supplier numbers provided by milk processing companies and Dairy Food Safety Victoria.

<sup>5</sup> ABARE – Farm Survey data

<sup>6</sup> 'Value Statement – Murray Dairy Milk Processors'. Final Report – Submission to the Guide to the proposed Basin Plan. December 2010.

With the recovery in water storages over the last 18 months, the industry is now well-placed to rebuild herds, reduce farm production costs, reduce debt and increase production back towards pre-drought levels.

However, this will not be possible if the Sustainable Diversion Limits under the Basin Plan are set at the levels proposed in the Guide.

***SDL impacts on water availability and trade in the Murray Dairy region:***

**Scenario 1 SDL (3000GL): impacts on annual water availability (GL) in the GMID\***

	Total GMID high reliability entitlement	Entitlement less high reliability buybacks to date (269GL)	Entitlement minus 460 GL expected under June 2009 Fed-Vic agreement	Entitlement minus proposed Scenario 1 SDL volume, offset by NVIRP savings (790GL)
Total system entitlement (GL)	2251	1982	1790	1460
Water available in 100% allocation year	2251	1958	1790	1460
Water available under 2005-10 drought allocations	~1470			<1000GL

*\*See Appendix 3 for detailed analysis.*

The table above shows that the total volume of water available in higher allocation years in the GMID under the proposed SDL will be approximately 1,460,000 ML – slightly less than the annual average volume allocated and therefore available during the worst of the drought from 2005/06 to 2009/10.

Dairy farmers adjusted to the reduced water availability in these years using a variety of short and long-term strategies, including changing to more water-efficient (and usually more costly) production systems, trading and carryover.

However, in a repeat of the severe drought conditions and low allocations experienced from 2005/06 to 2009/10, the proposed SDL means less than 1,000,000 ML would be allocated to consumptive entitlement holders, and therefore available.

The scenario painted above is extreme, as it could be expected that additional water carried over by farmers from good years would also be available, and they can buy in water from interstate (although the availability of that water source will be similarly constrained by the SDLs).

Nonetheless, overall water availability in the Guide’s SDL is unlikely to allow farmers to survive by trading on the temporary market in a repeat of the recent severe and prolonged drought conditions.

It also needs to be remembered in such years, in addition to competition between dairy, horticulture, mixed farming and other commodity sectors, all irrigators may also be competing to buy water with urban authorities such as Coliban Water and Central Highlands Water.

As the increased debt figures highlighted above illustrate, dairy farmers and other irrigated commodity sectors will struggle to survive reduced water availability and the increasingly dynamic, complex and uncertain operating environment under the Basin Plan.

Variables contributing to the complexity and uncertainty will include the activities of Commonwealth and State Environmental Water Holders, climate change impacts, altered river operations and seasonal water market volatility, and the prospect of farmers' allocations being reduced even further under the Equitable Sharing Principle proposed in the Guide<sup>7</sup>.

The MDBA and the Federal Government have publicly assured farmers that the Basin Plan would not affect allocations and reliability of water entitlements, on the basis that SDLs would be met by buying entitlements rather than reducing everyone's share to the available water.

But the Equitable Sharing Principle directly contradicts these public assurances, by proposing that if, for example, climate change modeling indicated a 20% reduction in water availability in a catchment in 2030, then State Water Resource Plans must correspondingly reduce diversions by 20%.

The principle takes no account of whether the environment objectives are being achieved through better water management, environmental works and increased environmental entitlement. It also enforces reduced diversion on the basis of what might happen, rather than what actually happens.

Similarly, the dairy industry is concerned that the MDBA Guide has arbitrarily assumed entitlement holders will wear an additional 3% cut in diversions to account for what might happen with climate change. Yet, the MDBA itself says modelling at this stage cannot distinguish impacts associated with drought and natural climate variability, from climate change.

Climate change should not be factored into diversion limits at this stage, whether by an arbitrary 3% cut in entitlements or an Equitable Sharing Principle based on what might happen. Instead, actual climate change observations should be assessed and quantified to inform the 10-year Basin Plan Reviews, so that any changes in diversion limits are based on scientific observation, not speculation.

An evidence-based approach to the SDLs is essential, because ultimately, even with temporary and interstate trade, carryover, and maximum on-farm efficiency, there is a tipping point at which not enough water may be available for enterprises to sustain production and remain financially viable.

And if enough farms are rendered unviable in an irrigation district, then fewer enterprises remain to share the costs of operating modernised and water-efficient irrigation systems. The Federal Government's haphazard approach to buying back entitlements will accelerate this process, further undermining the viability of the remaining farms.

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<sup>7</sup> The Guide to the Basin Plan: Technical Background Paper, Ch4, p123

### **How the temporary market could fail water-efficient dairy farmers in drought years.**

*A dairy farm with a 1000 ML high reliability entitlement on the Goulburn system could reduce its water use by half by investing in water efficient infrastructure and changing farm management practices.*

*In theory, it means this farm now has 500 ML of surplus water entitlement, half of which (250) would be transferred to the environment if the works were funded under the Federal \$300m On-Farm Irrigation Efficiency Program Government.*

*His remaining 750 ML in entitlement would be more than enough to run his farm in 100% allocation years, and would allow for expansion and an increase in returns by growing more feed to support a larger herd.*

*But in a repeat of the 2005/06 to 2009/10 scenario, with 58% average allocations in the Goulburn system, he would have 435 ML on average each year. This is just short of his annual 500 ML needs, but within that five-year average is one 29% allocation year, giving him just 219 ML, and a 33% year, giving him a marginally better but still inadequate 262 ML.*

*So, he can either buy in more feed at greater cost to supplement the fluctuating production from his own fields, or top up with water from the temporary market.*

*However, competition in the market would be fierce. This is because high-reliability entitlement buybacks for the environment – the near-exclusive target so far of the Federal program in Victoria – mean even less water would be available in the temporary market than during 2005/06 – 2009/10.*

*Competition will drive up prices, making water unaffordable for many enterprises. Even if price was no object, the small pool of available water simply may not be enough to go around for all the dairy, horticultural, urban and other buyers competing in the market, no matter how water-efficient they are.*

*The above may seem like an extreme and highly unlikely scenario, given the rainfall/inflows experienced from 2000-2009 were worse than the worst-case climate scenario for 2055 modelled in Victoria's Northern Region Sustainable Water Strategy.*

*And Murray Dairy irrigators now have many other tools, other than the temporary market, to manage their water needs, such as carryover. Water can be carried over indefinitely, but in the event of storages spilling this is the first water 'lost'. For all farmers, that means losing an asset valued by banks in assessing an enterprise's financial position.*

*The scenario above **illustrates the socio-economic limits of reducing entitlement to deliver more water for the environment.***

***It also illustrates the need for the Commonwealth Environmental Water Holder to have greater flexibility to trade on the temporary market during droughts, as a means of increasing consumptive water availability at a time when ecosystem needs are reduced under 'natural' conditions.***

## 2. Qld – Condamine-Balonne and Border Rivers

The dairy industry in the Queensland Basin area is located in the Condamine-Balonne and Border Rivers valleys. Production from the 176 farms in these two valleys primarily supplies drinking milk and other fresh products for local consumption, including Brisbane and the Gold Coast.

The milk is processed at four factories located in south-east Queensland and northern NSW . The industry is a major local employer, with 1250 people directly or indirectly employed.

The dairy farms rely primarily on groundwater for irrigation from the Upper Condamine Alluvium and Basalts areas, and the Queensland Border Rivers Alluvium area. Dairy farms also typically hold ‘unsupplemented’ licences, to extract surface water from unregulated rivers.

**SDLs:** The Guide to the Basin Plan proposes to reduce groundwater extraction by 34% (40,300ML) from current usage levels in the Upper Condamine Alluvium area and by 20% (15,000ML) in the Upper Condamine Basalts.

Proposed cuts of this scale may have significant implications for the dairy industry in the Condamine-Balonne valley. This is particularly the case when the proposed 29% reduction (203,000ML) in current surface water diversions would limit the flexibility for dairy farms to offset reduced water availability from groundwater by relying more on their surface water licences.

The proposed cuts are particularly concerning when the Guide has failed to articulate how the SDLs have been determined based upon available groundwater modeling and environmental analysis.

The Federal Government has promised that it will reduce diversions across the Basin by buying back entitlements on a voluntary basis, rather than reducing reliability of supply for all licence holders. However, the buyback program to date has focused on the southern connected Murray system, where the competitive tender approach is supported by an active market providing price signals.

But there is no active water market in the Condamine-Balonne and Border Rivers valleys, and so federal agencies have simply left farmers in limbo. In addition, there no detail currently available about how groundwater entitlements are to be reduced on a voluntary basis to achieve proposed SDLs.

A clear strategy is urgently needed so that farmers can plan their future, especially as they recover from the recent floods. A continued lack of progress in buyback and on-farm water recovery programs is only compounding negative community reactions to the Basin Plan.

The dairy industry wants to examine alternatives such as using water purchases to encourage on-farm infrastructure investment and coordinated assessments of the feasibility of a range of other investment options.

Implementation processes for water recovery programs must be improved to encourage ‘willing sellers’ and to facilitate investment in water use efficiency measures on farm. Attention must focus on engaging communities to clarify precisely the environmental objectives being sought, and identify the opportunities for economic growth and diversification to help cope with the Basin Plan.

Trying to rush into a draft Basin Plan without at least defining a voluntary program to reduce groundwater entitlements to sustainable levels will only encourage more negative reaction and leave the dairy industry in this region in an uncertain position.

### **3. NSW – Namoi, Macquarie-Bogan, Murrumbidgee**

Most dairy farms in the NSW Basin are located in the MDBA's Central Murray area, which in turn is part of the Murray Dairy region that includes northern and north-east Victoria. The issues affecting the 105 dairy farms in the Central Murray are described above in the Murray Dairy section.

Another 53 dairy farms are located in the Murrumbidgee, Lachlan, Macquarie-Bogan and Namoi river valleys. The proposed SDLs and implementation plans affect these farms in different ways.

Groundwater is an important source of water for dairy farmers in the Namoi, Lachlan and Macquarie-Bogan river valleys. Conversely, dairy farmers in the Macquarie-Bogan also rely heavily on surface-water availability, as do dairy farmers in the Murrumbidgee valley.

The Guide to the Basin Plan proposes to reduce groundwater extraction by 45% (53,100ML) from current usage levels in the Lower Lachlan Alluvium area, by 25% (24,400ML) in the Lower Namoi Alluvium area, and by 18% (14,100ML) in the Upper Lachlan Alluvium area.

Proposed cuts of this scale may have significant implications for dairy farms in these groundwater areas. Surface water availability has been severely constrained in recent drought years, raising the risk that the combination of groundwater and surface water cuts to meet the SDLs will leave farms without the flexibility they need to balance access to different water sources to survive dry periods.

The proposed cuts are particularly concerning when the Guide has failed to articulate the environmental objectives justifying the cuts. Poor community engagement and an information vacuum from the MDBA and Federal agencies are compounding negative community reactions to the proposed surface and groundwater SDLs.

As in Queensland, dairy farmers in these NSW river valleys want to work with the Federal agencies and the MDBA to clarify the environmental objectives and develop a clear strategy for water recovery programs through infrastructure investment.

### **4. SA – Lower Murray and Eastern Mount Lofty Ranges**

Seventy dairy farms are clustered in the Lower Murray region near Murray Bridge, with another 46 located in the eastern Mount Lofty Ranges. Dairy farms in these regions primarily supply drinking milk and fresh dairy products to the local SA market, but also supply a number of speciality cheese manufacturers. About 1000 people are directly and indirectly employed in the SA industry.

However, the drought has taken its toll on the viability of SA's dairy farms, which have battled rising debt and falling production in the face of reduced water allocations and water quality problems.

Investment in on-farm water efficiency works is critical for the future of these farms, but dairy farmers currently lack the financial capacity after years of drought. Investment that enables these farms to increase their production and remain viable with reduced water availability under the Basin Plan will have important socio-economic benefits for the region.

Dairy farmers in this part of the Basin want a clear strategy for water recovery programs, including on-farm infrastructure investment, so that farmers can plan their future. The dairy industry wants active engagement with federal agencies and the MDBA to develop programs appropriate to their needs.



## **Appendix 1: Water ‘products’ across the Murray Darling Basin**

### Summary\* (ML):

NSW	Victoria	Queensland	SA
High security licensed entitlements 587,892	High reliability water shares 2,278,094		Class 3a and 3b water access entitlement 565,056
General security licensed entitlements 6,313,064	Low reliability water shares 769,935		
Supplementary licences 1,170,000		Supplemented 235,000	
Unregulated river licences 687,474		Unsupplemented 700,600	
	Registration licences 74,847		
	Take and Use licences 87,667		

*\*Basin surface water entitlements (or ‘products’) by ML (excluding urban, conveyance and industrial)*

**Note:** Actual diversions have historically been less than the licensed volumes. This discrepancy means that to achieve the SDLs proposed in the Guide to the Basin Plan, the Federal Government will need to purchase entitlement to water volumes far in excess of actual diversions.

<b>Tradeable Surface Entitlements</b>	<b>Definition</b>
<b>High security water entitlement (NSW) /high reliability water share (Victoria)</b>	Water sourced from regulated river systems; water in dams is set aside to meet these entitlements first.
<b>General Security (NSW)</b>	Water sourced from regulated river systems, but with a lower reliability of supply after high security and other needs are met.
<b>Low reliability water share (Victoria)</b>	As above.
<b>Supplementary licence (NSW)</b>	Access during announced periods when flows exceed those required to meet other licensed obligations and environmental needs, typically when the dam is spilling or high tributary flows occur downstream of a dam.
<b>Unregulated licence (NSW)</b>	Subject to commence/cease to pump conditions on their licence when the river falls below a specified level, an unregulated river licence holder can otherwise pump at any time
<b>Take and Use licence (Victoria)</b>	Also known as Section 51 licences. Owners typically have conditional access to unregulated river water, such as the flows from tributaries entering rivers below the big dams
<b>Supplemented entitlement (Qld)</b>	A water supply where the reliability is enhanced by releases of stored water from infrastructure (eg dams and weirs).
<b>Unsupplemented entitlement (Qld)</b>	A water supply where reliability is not enhanced by the operation of water storage infrastructure.
<b>Class 3a and 3b water access entitlement (SA)</b>	High security water available for irrigation within SA’s cap on total extraction from the Murray River watercourse.
<b>Registration licence (Vic)</b>	An ongoing entitlement to take and use water for commercial purposes from a farm dam, spring or soak. Not tradeable unless converted to a Take and Use licence.

## Summary of northern Victorian surface water entitlements

Based on data in the Victorian Water Register at CoB 2 Feb 2011(ML)

River basin	Entitlement Type	Grouped reliability*				Total
		High	Low	Spill	Other	
Avoca	Bulk entitlement				278.0	278.0
	<b>Sub total</b>				<b>278.0</b>	<b>278.0</b>
Broken	Bulk entitlement	135.0			2,324.0	2,459.0
	Registration licence				8,195.9	8,195.9
	Take and use licence				1,942.9	1,942.9
	Water Share	17,817.0	3,345.2			21,162.2
	<b>Total</b>	<b>17,952.0</b>	<b>3,345.2</b>		<b>12,462.8</b>	<b>33,760.0</b>
Bullarook	Bulk entitlement	500.0			0.0	500.0
	Water Share	770.8	386.6			1,157.4
	<b>Sub total</b>	<b>1,270.8</b>	<b>386.6</b>		<b>0.0</b>	<b>1,657.4</b>
Campaspe	Bulk entitlement	1,393.0	5,048.0		470.0	6,911.0
	Registration licence				6,964.3	6,964.3
	Supply by agreement				16.0	16.0
	Take and use licence	0.1			1,733.0	1,733.1
	Water Share	36,911.2	18,660.7			55,571.9
	<b>Sub total</b>	<b>38,304.3</b>	<b>23,708.7</b>		<b>9,183.3</b>	<b>71,196.3</b>
East Gippsland	Take and use licence				0.1	0.1
	<b>Sub total</b>				<b>0.1</b>	<b>0.1</b>
Goulburn	Bulk entitlement	92,969.8	156,980.0		63,388.0	313,337.8
	Registration licence				18,372.1	18,372.1
	Supply by agreement	4,793.4	1,987.5		97,944.9	104,725.8
	Take and use licence	1,831.4			21,752.2	23,583.6
	Water allowance				1,319.5	1,319.5
	Water Share	993,396.4	438,601.1			1,431,997.5
	<b>Sub total</b>	<b>1,092,991.0</b>	<b>597,568.6</b>		<b>202,776.7</b>	<b>1,893,336.3</b>
Kiewa	Bulk entitlement				2,175.0	2,175.0
	Registration licence				3,967.7	3,967.7
	Take and use licence	4.0			14,445.4	14,449.4
	<b>Sub total</b>	<b>4.0</b>			<b>20,588.1</b>	<b>20,592.1</b>
Loddon	Bulk entitlement	4,020.0	2,024.0		4,461.0	10,505.0
	Registration licence				14,543.0	14,543.0
	Take and use licence	1.0			15,436.6	15,437.6
	Water allowance				1,051.5	1,051.5

	Water Share	21,393.4	8,095.6			29,489.0
	<b>Sub total</b>	<b>25,414.4</b>	<b>10,119.6</b>		<b>35,492.1</b>	<b>71,026.1</b>
Murray	Bulk entitlement	148,576.0	101,849.9		35,340.0	285,765.9
	Registration licence				13,452.5	13,452.5
	Supply by agreement	4,628.6	697.3		23,194.4	28,520.3
	Take and use licence	0.1			14,968.9	14,969.0
	Water Share	1,181,640.7	300,846.0			1,482,486.7
	<b>Sub total</b>	<b>1,334,845.4</b>	<b>403,393.2</b>		<b>86,955.8</b>	<b>1,825,194.4</b>
Ovens	Bulk entitlement	7,932.0			2,513.0	10,445.0
	Registration licence	41.0			9,351.0	9,392.0
	Take and use licence	3.1			15,548.8	15,551.9
	Water Share	26,164.9		12,485.2		38,650.1
	<b>Sub total</b>	<b>34,141.0</b>		<b>12,485.2</b>	<b>27,412.8</b>	<b>74,039.0</b>
<b>Total</b>	<b>2,544,922.9</b>	<b>1,038,521.9</b>	<b>12,485.2</b>	<b>395,149.7</b>	<b>3,991,079.7</b>	

\* Reliabilities have been grouped for non-water share entitlements. High reliability entitlements include those with a reliability of "Very high" and "High - 50% minimum".

**Water held in Bulk Entitlements** is not available for purchase, as it is either water held for urban purposes, or to cover losses in irrigation districts such as the Goulburn Murray Irrigation Districts. Infrastructure upgrade such as the Northern Victoria Irrigation Renewal Project will recover large volumes of water losses so it can be used for other urban, environmental and agricultural purposes.

**Registration licences** are for water accessed from farm dam, springs or soaks for commercial purposes. These licences are not tradeable under the terms of the Victorian farm dams legislation, unless they are converted into a Take and Use licence.

**Supply by Agreement** contracts include contracts for urban supply between water authorities, which are not available for purchase, and contracts for irrigation and stock and domestic supply to rural and residential 'syndicates'. There are some opportunities for water savings through improved infrastructure that would enable some water held under this second group to be freed up for other purposes such as the environment'.

**Take and Use licences** are also known as Section 51 licences, after the relevant section in the Victorian Water Act. Owners typically have conditional access to unregulated river water, such as the flows from tributaries entering rivers below the big dams. Conditions vary, but may include provisions such as only taking their entitlement during winter months when river flows are high, and occasional summer bans if passing flows drop below prescribed levels. Water accessed under these licences is used for a wide variety of purposes, including irrigation, outside the irrigation channel districts.

People holding **high reliability water shares** have historically been able to rely on getting at least 100% of their entitlement allocated in 89 to 98 years in every 100 years, depending on their catchment. Under a medium climate change scenario, this reduces to 79-89 years in every 100 by 2055, and 26-68 years under a continuation of the conditions experienced from 1997-2007 (source: Northern Victorian Sustainable Water Strategy, pp25, <http://www.ourwater.vic.gov.au/programs/sws>)

People holding **low reliability water shares** in the Victorian Murray, Goulburn and Loddon systems can expect a 100% allocation in 8-9 years out of 100, and 78 and 85 years out of 100 in the Campaspe and Broken systems respectively. Under a medium term climate change scenario, reliability drops to a 100% allocation only 10 years in 100 (Murray), 1 year (Goulburn and Loddon), 61 years (Campaspe) and 70 years (Broken). (source: Northern Victorian Sustainable Water Strategy pp26 <http://www.ourwater.vic.gov.au/programs/sws>)

**Summary of NSW entitlements in the Murray Darling Basin**  
**Entitlements (in ML) on Murray Darling Basin regulated river systems**

	Town	Stock & Domestic	High Security	General Security	Supplementary	Conveyance Loss	TOTAL
<b>NSW Murray</b>	33,326	14,518	198,011	1,983,508	250,000	300,000	2,779,363
<b>Murrumbidgee</b>	23,403	35,572	298,021	2,043,432	220,000	373,000	2,993,428
<b>Lachlan</b>	15,544	13,302	30,692	592,487	0	-	652,025
<b>Macquarie</b>	22,681	14,265	19,419	632,428	50,000	-	738,793
<b>Namoi</b>	18,821	2,287	4,212	256,421	110,000	-	391,741
<b>Gwydir</b>	3,836	4,245	19,293	509,500	170,000	-	706,874
<b>Border Rivers</b>	620	1,247	1,245	265,000	120,000	-	388,112
<b>Lower Darling</b>	10,160	601	7,999	30,288	250,000	-	299,048
<b>NSW MDB TOTAL</b>	<b>128,391</b>	<b>86,037</b>	<b>578,892</b>	<b>6,313,064</b>	<b>1,170,000</b>	<b>673,000</b>	<b>8,949,384</b>

Source: NSW Office of Water

**Licensed entitlement volumes in NSW MDB unregulated rivers**

River valley	Total entitlement ML
Border	28,904
Gwydir	46,148
Namoi	164,291
Lachlan	43,215
Macquarie	88,200
Barwon-Darling	199,571
Murray	52,407
Murrumbidgee	64,738
<b>Total NSW MDB</b>	<b>687,474</b>

Source: NSW Office of Water

**‘Supplementary licences’** Holders of supplementary water access licences are able to extract water during announced periods when flows exceed those required to meet other licensed obligations and environmental needs. This is typically during periods when the dam is spilling or as a result of high tributary inflows downstream of a dam.

**Town and stock and domestic water entitlements** are not available for purchase.

**High security and general security** are similar to Victoria’s high and low reliability water shares respectively. However, whereas most water in Victoria is held in high-reliability shares, in NSW more water is held in general security entitlements whose reliability is highly variable (see table below).

**Unregulated river licences:** Subject to commence/cease to pump conditions on their licence when the river falls below a specified level, an unregulated river licence holder can otherwise pump at any time.

**Final allocations for NSW high security (HS) and general security (GS) users in the major regulated river valleys over the last 10 years**

Valley	10/11 %	09/10 %	08/09 %	07/08 %	06/07 %	05/06 %	04/05 %	03/04 %	02/03 %	01/02 %
<b>Border</b>										
HS	100	100	100	100	100	100	100	100	100	100
GS	100	10	24	38	25	38	17	54	14	95
<b>Lower Darling</b>										
HS	100	100	100	100	100	100	100	100	100	100
GS	100	100	50	50	0	100	100	30	100	100
<b>Gwydir</b>										
HS	100	100	100	100	100	100	100	100	100	100
GS	67	0	0	24	0	22	5	31	0	27
<b>Lachlan</b>										
HS	100	10	30	30	80	100	30	70	30	100
GS	108	0	0	0	0	19	0	0	3	58
<b>Namoi</b>										
HS	100	100	100	100	100	100	100	100	100	100
GS	104	1	24	14	0	31	14	47	0	28
<b>Macquarie HS</b>	100	100	100	100	100	100	100	100	100	100
GS	100	0	10	5	0	44	9	19	0	90
<b>Murray</b>										
HS	100	97	95	25	69	55	97	95	95	100
GS	100	27	9	0	0	63	49	55	10	105
<b>Murrumbidgee</b>										
HS	100	95	95	90	90	95	95	95	95	95
GS	100	27	21	13	10	54	40	40	40	72

Source: NSW Office of Water

NB: Table does not include allocations from the smaller Split Rock and Chaffey Dams (Namoi Valley), Windamere Dam (Macquarie Valley) and Carcoar Dam (Lachlan Valley).

**Summary of Queensland licensed entitlements in the Murray Darling Basin**

Catchment	Surface Water entitlements (ML)		Groundwater entitlements (ML)	
	Supplemented	Unsupplemented	Alluvial	Other
<b>Condamine Balonne</b>	123,200	453,100	137,300	61,300
<b>Border Rivers</b>	109,700	176,700	18,200	600
<b>Moonie</b>		28,700		
<b>Nebine</b>		2,000		
<b>Warrego</b>	2,600	40,000	300	100
<b>Paroo</b>		100		
<b>Total</b>	<b>235,500</b>	<b>700,600</b>	<b>155,800</b>	<b>62,000</b>

Source: Queensland Department of Environment and Resource Management, Water Services, South West region.

**Supplemented:** A water supply where the reliability is enhanced by releases of stored water from infrastructure (eg dams and weirs). Includes town and other non-agricultural water supplies, but these account for less than 5% of the total volumes.

**Unsupplemented:** A water supply where reliability is not enhanced by the operation of water storage infrastructure. Some small communities also rely on unsupplemented water for urban supplies.

## Summary of South Australian entitlements in the Murray Darling Basin

Water access entitlement classes	Total ML
(class 1)	8,704
(class 2)	50,000
(class 3a)	544,018
(class 3b)	21,038
(class 4)	4,423
(class 5)	5,519
(class 6)	130,000
(class 7)	38,366
(class 8)	22,200
<b>Total</b>	<b>823,600</b>

**Source:** *Water Allocation Plan for the River Murray Prescribed Watercourse (as amended July 2009)*  
<http://www.samdbnrm.sa.gov.au/Portals/9/PDF%27s/Water/River%20Murray%20Water%20Alloc%20plan.pdf>

Classes have been established to reflect the reliability and transferability of the water in the South Australian section of the Murray Darling Basin. Whilst the classes do not reflect purpose of use, they align to individual or groupings of the former purpose-based allocations as follows:

- Class 1 – Stock, domestic and stock and domestic purposes
- Class 2 – Urban water use – country towns
- Class 3 a – Irrigation + holding other than in the Qualco Sunlands Groundwater Control area
- Class 3 b – Irrigation and holding in the Qualco Sunlands Groundwater Control Trust area
- Class 4 – Recreation
- Class 5 – Industrial and industrial dairy
- Class 6 – Urban water use – metropolitan Adelaide through the Swan Reach – Stockwell Mannum Adelaide and Murray Bridge-Onkaparinga pipelines = rolling 5 year allocation
- Class 7 – Environment
- Class 8 – Environmental land management

## ***Appendix 2: Hattah Lakes: Case study for water savings from environmental works***

*Source: Victoria Department of Sustainability and Environment*

While engineering designs and approvals are still being finalised, the lakes themselves have been watered using temporary works (levee banks and portable pumps). This has enabled a total of 48.4GL to be pumped into the lakes system over the six years since 2004-05.

In absence of the temporary works, an additional 1400GL would have been required to achieve the same environmental outcomes.

**When project is complete: mimicking the current flood – though in a smaller area**

When complete, the planned works will enable watering at Hattah Lakes to the height of the current flood, but without the broader system impact that the current flood is causing.

The complete package of Living Murray environmental works will enable the broader floodplain to be watered as well as the lakes system.

This will require an additional 65 GL of environmental water per event. In the absence of works, this would require an additional 1100 GL of environmental water per event. The works will mimic the flooding that Hattah is receiving from this current flood, although over a smaller area.

### **1. Proposed Environmental Watering Initiatives – selected projects**

*Source: “Priority works to increase the effectiveness and efficiency of environmental water delivery in northern Victoria, July 2010” DSE report to MDBA.*

<b>Watering national parks, river red gums on the River Murray and priority Victorian wetlands</b>
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#### **Summary description:**

<p>This initiative will protect key national parks, river red gum forests and priority wetlands with infrastructure to deliver environmental water at lowest cost to the community.</p>
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<p>The works will reduce the volume of water required to achieve environmental outcomes, which means less water needs to be diverted from productive use under the Commonwealth Basin Plan.</p>
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<p>Works will include regulators, pumps and channels to enable watering of more than 17,400 ha of high-value river red gum floodplains and wetlands across 41 sites. The works will:</p>
--

- |  |
|--|
| <ul style="list-style-type: none"><li>• <b>reduce the amount of environmental water required across Victoria by at least 550,000 ML per annum, compared to watering without works</b></li><li>• provide regional economic benefits by reducing the need to recover water for the environment</li></ul> |
|--|

<p>This program is estimated to cost \$105 million and will be implemented over four years. It is focused on watering river red gum forests in existing and new national and State parks and reserves, and high-value wetlands.</p>
---

## Detailed description:

Structural works can greatly reduce the volume of environmental water needed to deliver similar environmental outcomes.

**With works - even in conditions as severe as the last 13 years - Victorian and Living Murray environmental entitlements can largely supply the water requirements of the sites in this proposal.**

Any shortfall could be met by Commonwealth water held in Victoria (from NVIRP Stage 2 and water purchase) as the sites meet the Commonwealth's criteria for environmental watering.

Components in this package include:

*1. Existing River Murray national parks (\$40.5 million to water about 5,150 ha):*

- Living Murray 'icon site' Lindsay Island
- Living Murray 'icon site' and Ramsar-listed Lake Kramen in the Hattah Lakes

These sites are 'icon sites' in the Living Murray program but their works have not been funded.

The Lindsay Island works will enable watering ~5,000 ha of floodplain at a cost of ~\$40 million. The works reduced the volume of water required from 1,200,000 ML per event to 90,000 ML.

Lake Kramen requires even larger floods than Lindsay Island (152,000 ML/day, compared to 70,000 ML/day). The works program will enable water to be piped to the site for ~\$0.5 million.

*2. River red gum forests in the newly-established national and state river red gum parks and reserves (\$32 million to water around 3,000 ha):*

- Living Murray 'icon site' Wallpolla Island, part of the expanded Murray-Sunset National Park
- the new Nyah-Vinifera Park
- sites in three priority reaches: Bridge Creek to Murrumbidgee junction, Echuca to Torrumbarry and Robinvale to Mildura

These sites comprise 50% of the total area of priority sites requiring works to water the new River Murray red gum parks and reserves. Structures are essential to provide water under climate change, with significant water savings compared to re-instating natural floods.

Without works, more than 300 GL per annum could be required to water these sites, compared to around 35 GL on average with the works. The works would also avoid flooding private land.

*3. High-value wetlands (\$32.5 million to water 9,200 ha):*

- Ramsar-listed wetlands, including five of the Kerang Lakes, plus Lower Latrobe and Lower Barwon River wetlands
- 16 priority sites across northern Victoria.

These wetland works will improve environmental water regimes in the Ramsar wetlands, and are the only mechanisms available to deliver water to the priority northern Victorian wetlands. With works, all of these sites could be watered under extended droughts or a climate change future.



### ***Appendix 3: SDL Impacts on water availability in the GMID: analysis***

As at 2 February 2011, approximately 2,251,000 ML was held in high-reliability entitlements in the Goulburn Murray Irrigation District in northern Victoria.

The Guide to the Basin Plan proposes reducing diversions by a total of ~968,000 ML across the relevant catchments (Goulburn, Broken, Campaspe, Loddon and Vic Murray), under its 3,000,000 ML Cscenario 1 for the Basin-wide SDL.

Taking account of the expected NVIRP water savings for the environment in the GMID (175,000 ML), another ~790,000 ML is required to meet the collective proposed SDL.

If this is achieved by purchasing high reliability entitlements – the exclusive target so far in the Federal buyback program -- the remaining entitlements total ~1,460,000 ML of water.

This in turn translates to ~1,460,000 ML of water available in a 100% allocation year.

This is similar to the five-year annual average (~1,470, 000 ML) available during the worst of the drought from 2005/06 to 2009/10, when high reliability water share allocations averaged from 9.8% in the Campaspe up to 74.6% in the Murray.

Dairy farmers adjusted to the reduced water availability in these years using a variety of short and long-term strategies, including changing to more water-efficient (and usually more costly) production systems, trading and carryover.

So what happens with the SDLs proposed in the Guide to the Basin Plan, in a repeat of the severe drought conditions and low allocations experienced from 2005/06 to 2009/10?

Instead of a collective pool of 1,470,000 ML in available allocations, all farmers -- dairy, horticulture and mixed – will be trying to survive with a potential collective pool of less than 1,000,000 ML.