Australian Dairy Industry Council

submission in response to the
Commonwealth Environmental Water Holder
discussion paper on

Commonwealth Environmental Water Trading Arrangements

Friday 11 May 2012

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Australian Dairy Industry Council

The Australian Dairy Industry Council (ADIC) is the national peak policy body for the Australian dairy industry and represents all sectors of industry on issues of national and international importance.

Our member organisations – the Australian Dairy Farmers Limited and the Australian Dairy Products Federation - represent the interests of dairy farmers, manufacturers, processors and traders across Australia.

The ADIC's role is to develop and present a unified dairy position on issues that affect the industry's future across the entire value chain.

ADIC Contacts

Chris Griffin
ADIC Chair
Ph: 03 8621 4200

Daryl Hoey
ADIC Basin Response Taskforce Chair
Ph: 0407 582 982

Address:
Australian Dairy Industry Council, Level 2 Swann House, 22 William St, Melbourne Vic 3000
Ph: 03 8621 4200

Executive Summary

Water availability and affordability are the dairy industry's key issues with the draft Murray Darling Basin Plan. The draft Plan proposes to recover 2,750GL in the form of entitlements; this will result in at least a 30% reduction in water diversions for agriculture[1].

Shrinking the collective pool of water available for irrigation, trade and carryover will drive up prices for allocation trade, particularly in droughts when allocations are low, and may undermine the viability of irrigation sectors.

The type and location of entitlements recovered will also affect the viability of shared irrigation districts, as reduced water deliveries will put water companies under pressure to increase charges to cover the costs of maintaining and operating the system.

The Commonwealth Environmental Water Holder's behaviour in the water market, and its use of risk management tools such as carryover, may ease or worsen socio-economic impacts arising from the Basin Plan's implementation.

It is essential, therefore, that the Water Act and/or the ministerial *Operating Rules* provide more flexibility to exercise some judgment in balancing environmental benefits against socio-economic considerations.

The Australian Dairy Industry Council recommends:

1. The CEWH should hold the minimum size of holding possible, and a mix of entitlements that minimises socio-economic impacts.

2. CEWH decisions on management and trade of the environmental water holding should reflect the wider socio-economic objectives of the Water Act 2007, as well as meeting environmental watering requirements. To this end:
    a. Section 106 of the Water Act should be amended with an additional clause, to require consideration of the wider socio-economic objectives embedded within the Act and environmental watering plans, in any decision to trade entitlement or annual allocation.
    b. The ministerial *Operating Rules* should explicitly require consideration of the socio-economic implications of trading entitlement or annual allocation in any CEWH decision to enter the market.
    c. The ministerial *Operating Rules* must require full socio-economic and regulatory impact assessments if the CEWH plans to sell entitlement in one catchment in order to buy more in another.
    d. The ministerial *Operating Rules* should have clear rules and protocols guiding CEWH access to water markets in very dry sequences, to prevent price escalation.
    e. The ministerial *Operating Rules* should authorise the CEWH to sell water in very dry and dry years. This approach would help support regional communities dependent on access to annual allocation to maintain high value irrigation, and can be justified because the 'minimum environmental need' in these years should mimic natural low flows.

3. These broader, decision-making criteria should be reinforced by including representatives of irrigation communities on the proposed water trading advisory committee.

4. CEWH access to markets should be via stand-alone mechanisms that are transparent and minimise distortions of the standard mechanisms such as on-line trading platforms.

[1] '*Social and economic assessment of the draft Basin Plan'*, MDBA presentation to regional financial institutions, 27 February to 1 March 2012.

5. The CEWH will place very different demands on headworks operators, compared with historical operations to meet irrigation demands. Additional costs associated with managing headworks to meet environmental needs must be recovered explicitly from the CEWH, and not shared across the wider irrigation community.

6. Environmental watering plans need to explicitly describe the conditions under which minimum environmental water needs will be met in Dry and Very Dry years, to help guide the CEWH in trading decisions.

7. Environmental watering plans and releases should be subject to an explicit requirement that releases do not cause adverse impacts on established property rights of landholders, such as flooding.

1. Dairy sector: trading of environmental water holdings

Dairy concerns about environmental water holdings

Water availability and affordability are the dairy industry's key issues with the draft Murray Darling Basin Plan. The draft Plan proposes to recover 2750GL in the form of entitlements; this will result in at least a 30% reduction in water diversions for agriculture[2].

While the ultimate volume recovered in the form of entitlements may change as a result of the Murray Darling Basin Authority's recently-concluded public consultation, the Commonwealth Environmental Water Holder (CEWH) is already the largest single owner of entitlements in the southern connected Basin.

As of 29 February 2012, the Federal Government had purchased around 11% of high reliability, general security and low reliability entitlements in the southern connected Basin.

This aggregate masks, however, that the buybacks have targeted higher reliability entitlements. For example, the Commonwealth now owns around 17% of high reliability water shares (HRWS) in the Victorian Goulburn and Murray systems, and 16% of South Australian high reliability entitlements. Allocations and therefore trade against these entitlements played a critical role in high-value sectors such as dairy and horticulture surviving the drought.[3]

So, even if no more entitlement was recovered for the environment, the collective pool for irrigation, trade and carryover is already substantially smaller. This creates the potential to drive up prices for allocation trade in dry years, and exacerbate the acute water scarcity for human needs experienced during the millennium drought. If the CEWH were then to compete in the market to buy additional allocation in a run of dry years, this could undermine the viability of key irrigation sectors.

Less water delivered through shared irrigation districts will also put water companies under pressure to increase charges to cover the costs of maintaining and operating the system.

The dairy sector relies on secure access to water for irrigation either from annual allocation against entitlements held by dairy farmers themselves, carryover or annual allocation for sale on the market. The irrigated dairy sector is concerned that:

- Buyback will reduce the volume of allocation that has traditionally been available on the market in dry seasons to provide additional water for the dairy sector. If the CEWH does not trade, then dairy farmers may be unable to access an adequate volume of allocation via the market.

- If the CEWH does not release allocation into the market in dry seasons, then the smaller market will drive up prices due to horticulture's higher purchasing power.

[2] '*Social and economic assessment of the draft Basin Plan'*, MDBA presentation to regional financial institutions, 27 February to 1 March 2012.
[3] 'Impacts of water trading in the southern Murray–Darling Basin between 2006–07 and 2010–11', National Water Commission, Commonwealth of Australia 2012.

- The CEWH may act in an unpredictable and capricious manner that will distort current market dynamics.

- The CEWH will outbid the dairy sector in the market in a run of dry seasons by seeking to purchase additional allocation to meet environmental watering plans.

- A decision to stay out of the market will lead the CEWH to hold more entitlement than it needs in an average season, in order to guarantee it holds adequate water in years of low allocation.

- The CEWH will preferentially seek to hold higher security entitlements in the belief that this is necessary to ensure the watering frequency specified for environmental needs.

  This would worsen socio-economic impacts as the holders of these entitlements generate higher returns and invest more in the regional economy than sectors built around lower security water products.

- The environment will not pay its full share of the costs for running storages and delivery systems. The CEWH is committed to paying headworks charges but there is uncertainty about whether it will pay to use irrigation systems to deliver environmental water. This would load additional costs on to irrigators.

Principles for use of environmental water holdings

These concerns generate the following principles that inform the responses to the CEWH's discussion paper:

- The CEWH should hold the minimum size of holding possible, and a mix of entitlements that minimises socio-economic impacts.

- The CEWH should then use works and measures, carryover and water trading to meet optimal environmental watering needs at least cost to the community.

- The CEWH should be an active participant in the water market, subject to clearly established rules and protocols to help inform the market and minimise price distortions.

- The ministerial *Operating Rules* relating to the CEWH's use of water trading should expressly include an obligation to consider the interests and needs of regional communities as well as the watering requirements of the environment.

- The operation of the CEWH against these rules should be subject to oversight from an independent advisory committee with representation from irrigation sector interests.

- The CEWH should be willing to offer up allocation in dry years (when irrigation has the greatest needs) and purchase additional allocation in wet seasons to ensure maximum flows (when irrigation has smaller demands).

- This approach should help maintain the size of the 'buffer' available to provide additional allocation for the dairy sector at a reasonable price in dry years.

- The CEWH should pay water charges in a similar manner to irrigators and cover any additional costs incurred by water resource managers in delivering water to meet environmental watering needs.

2. CEWH Discussion paper

The sub-sections in this chapter follow the section numbers in the CEWH discussion paper, and provide analysis and commentary against each discussion point.

The wider objectives of the Water Act

The introduction clearly sets the boundaries to the discussion paper, ie that "*the water must be managed to meet the objectives contained within the Act: to protect or restore environmental assets within the Basin".*[4]

Equally, later sections refer to the specific requirements of Section 160 of the Water Act, which set out the terms on which any trading of the Commonwealth environmental water holding may take place.

The analytic focus is too narrow in this approach. The role of the CEWH and the management of the Commonwealth environmental water holding must be debated within the overall objectives of the *Water Act 2007*, which clearly state that the Basin Plan, among other things, must *optimise economic, social and environmental outcomes* (Section 20 (d)).

Therefore, any assessment of trading options should be cast within that broader purpose, including social and economic interests, rather than the narrower confines of the specific sub-section that relates to trading of the environmental holding.

The discussion paper recognises that the CEWH will be a major player and that its behaviour will have implications for other players. It also identifies that active management of the holding could assist *in improving the capacity of the portfolio to meet the objectives of the environmental watering plan to protect or restore environmental assets of the Basin.*[5]

This approach is welcome. Previous comments from the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) had suggested that water trading was unlikely to be implemented and that the obligations in Section 106 of the Water Act would restrict the CEWH from placing environmental water holdings on the market.

So the discussion paper is encouraging as it identifies that the CEWH now believes that the Act does allow water trading, and that it also understands that active management can enhance the value of the environmental holding and also aid irrigators.

The trade to and from consumptive use also has the potential to benefit agricultural users who are counterparties to this trade, and therefore to reduce the socio-economic costs of the return of water to the environment.[6]

This is a welcome recognition. It should become an explicit major driver of the trading policy and practice. However, the current legislative and policy context are too restrictive.

Legislative provisions – trade of environmental entitlements

Section 106 of the *Water Act* defines the legislative basis for trade of the Commonwealth environmental water holding. These legal requirements are restrictive, as they limit potential trade that could deliver beneficial outcomes for the community while still meeting environmental needs.

Ideally, these sections need to be amended to give clear legal support for the ministerial protocols and trading rules, including provisions to consider socio-economic impacts in any decisions around trade of the Commonwealth environmental water holding.

Section 106(1)

This section only allows sale of allocation when the water is not required within the year in question and cannot be carried over to the following season.

This wording is very restrictive as:

[4] Commonwealth Environmental Water – Trading Arrangements. Discussion Paper. Commonwealth Environmental Water Holder, 7 November 2011, p1.
[5] *Ibid*. p1
[6] *Ibid*. p2

- There will be very few years when no possible ecosystem functions would benefit from additional water – even though the environmental benefit might be marginal compared with substantial socio-economic impacts resulting from acute water scarcity.

- This is particularly true in the southern system where the annual needs of the Murray Mouth and Lower Lakes are high.

- If the CEWH does sell water, it will be at risk of legal challenge from local environmental groups who will seek to constrain trade on principle.

- Victoria's extensive carryover rights will constrain sales of environmental allocation in dairy's heartland in the Goulburn Murray Irrigation District, except in very wet years when demand is low.

Section 106(2)

This sub-section only allows trade if the proceeds can be used to acquire other water to improve environmental objectives.

This requirement places a very high bar on the trading decision as it effectively denies use of trading if the outcome is neutral in terms of environmental outcomes, even if it creates major socio-economic benefits.

It limits the CEWH's ability to promote other highly valuable activities that might generate higher environmental outcomes such as works and measures. It also limits the CEWH's ability to raise funds to pay its high annual storage and other fees.

Both sections are unduly restrictive. The legislation should be amended and ministerial *Operating Rules* developed that:

- Are informed by the wider purposes of the Basin Plan.
- Recognise the significant socio-economic implications of trade.
- Extend the criteria for trade to include socio-economic considerations.
- Empower the CEWH to use the proceeds of trade to fund a wider range of activities that will benefit the environment, such as works and measures, or to pay water charges.

Portfolio management

This section confirms that the CEWH has three options when considering the use of its portfolio of entitlements:

a) **Use:** It can use the holding to deliver outcomes in line with the requirements of specific environmental watering plans and the Basin Plan.
b) **Carryover:** It can use local carryover rights to hold the water for use in a following season.
c) **Trade:** It can trade the holding to improve environmental outcomes elsewhere or in future years.

The major issue here relates to how the use of these options impacts on other users.

a) Use

Headworks are currently managed to meet the relatively homogenous needs of multiple irrigation entitlement holders. That reduces potential conflict between users and allows coordination and economies of scale in system operation.

The CEWH will place very different demands on the headworks operator from the irrigation sector. Water will be sought at different times of year, between seasons, in different patterns and with different ordering times.

Managing and responding to these new demands will create additional costs for the system manager. These costs must be recovered explicitly from the CEWH, not from the wider irrigation community.

The CEWH's use also has potential to conflict with irrigation sector's established use. At the extreme this could involve very high releases that cause flooding of delivery systems or private property, as the flow rates are greater than the capacity of the river system.

The watering plans should be subject to an explicit requirement that the releases do not cause adverse impacts on established property rights of landholders.

b) Carryover

The CEWH's use of carryover could affect the security of supply and interests of other users in the system.

This issue is discussed further in section 3.3 below.

c) Trade

The discussion paper then analyses possible scenarios when the CEWH might trade. The dairy industry has provided comments on each scenario below:

- Establishing capacity to meet future environmental needs: This would involve the CEWH using sales of entitlement or allocation in one year to gain funds to allow additional purchases the next. It is good to see recognition that the CEWH anticipates selling in dry years and purchasing in wet years. That meets a major aim of the irrigation sector. The major concern here is one of market dominance. That is dealt with in the section 2.4 below.

- Variance in conditions across the Basin: This scenario would allow the CEWH to sell water in one catchment where environmental water needs are low and prices are high, and buy water elsewhere where prices are low and environmental demands are high. This makes sense in theory, as the holding should match the environmental need.

  However, rebalancing poses significant risks if it involves buying more entitlement where significant buyback has already occurred. An example is the Victorian Murray and Goulburn system where the Commonwealth has already bought 17% of high reliability entitlements.

  It is critical that any rebalancing between catchments is subject to a full socio-economic impact assessment and is subject to transparent trading rules and protocols.

- Changing circumstances and information: This section recognises that the current portfolio of water products was purchased by the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) before location-specific watering plans were developed.

  As those plans are developed, it should be possible for the CEWH to rebalance its portfolio to best meet local needs. Notwithstanding the need to assess socio-economic and regulatory impacts, as described above, changing circumstances and information do provide an opportunity to reconsider strategies that minimise socio-economic impacts through lower reliance on high security entitlements.

- Dealing with delivery constraints/opportunities: The discussion paper recognises that use of the full holding may be constrained by the system's physical characteristics. It would be sensible for the CEWH to rebalance its portfolio to allow entitlements to be more fully used, subject to the provisions described above.

  The discussion paper also identifies that investment in infrastructure options may allow environmental outcomes to be achieved with smaller volumes and then return that surplus to irrigators. Both approaches appear sensible, provided they are undertaken within a transparent framework that does not distort wider market functions.

- Immediate environmental water requirements met – carryover not available: This appears to be an unlikely scenario, particularly when end of system needs are always likely to be high and where carryover rules are generous, as in Victoria.

Capacity building to meet future environmental needs

Chapter 4 of the discussion paper then expands on the first scenario in section 2.3 above, ie the use of water sales in one year to help build a more effective portfolio for future years. The paper identifies the CEWH's likely trading responses to climate scenarios.

The discussion paper explores likely trading responses by the CEWH to five climate scenarios from 'very dry' to 'very wet', taking account of the constraints of Section 160. It suggests that the CEWH would be likely to sell allocation in some dry years.

In each scenario, the CEWH's response is determined by two criteria:

- the needs of the environment; and,
- the likely market price of water.

Section 160(2) in the Water Act specifies that sale is only allowed when the proceeds are then used to "*improve the capacity of the portfolio to meet environmental objectives*". This does not allow the CEWH to invest in works and measures or other activities that promote environmental outcomes.

Water use and markets in the southern connected Basin

Any analysis of the CEWH's use of water trading needs to start with an appreciation of the current dynamics of water use and the water market across the southern connected Murray-Darling Basin. This provides the basis for analysing the probable impact of the CEWH's holding and possible use of water trading and carryover.

The southern Basin comprises three sectors with highly differentiated needs, water uses and approaches to the water market. Those three sectors are in effective equilibrium:

- **Horticulture** has the highest requirement for secure access under all seasonal conditions to protect permanent plantings. It relies on a high security water product (High Reliability Water Shares, or HRWS, in Victoria; and High Security entitlement in NSW).

  It has a constant demand for water and so is a buyer in dry and very dry seasons. In very dry years, it will buy all the allocation available in the water market and will out-bid all other players. In other seasons it is a small player.

- **Rice and other annual crops** are grown with a general and low security product (General Security entitlement in NSW and Low Reliability Water Shares (LRWS) in Victoria). They are opportunistic in their water use and will only plant when allocations are high, ie. in average, wet or very wet years. In other years they will sell their allocations to the horticulture or dairy sectors as this will yield a higher value and lower risk return.

- **Dairy** sits between the other two sectors. It is the largest holder and user of water, and is an active water user and market player in all seasons. It relies on a mix of high, general and low security water products in the different States:

  - *In wet and very wet years,* it will maximise the area irrigated for home-grown feed, and carryover surplus for later years.
  - *In average years,* it will use its full allocation, any available carryover and access the market where required to grow home-grown feed.
  - *In dry years,* it will use whatever carryover it still has, it will buy water to augment its allocation to grow feed, but also buy in more externally grown feed.
  - *In very dry years,* it will sell its allocation to horticulture when the market price is above $300/ML and substitute home-grown feed with bought-in feed.

The following dot points provide an alternative analysis from the CEWH discussion paper, in how the different sectors and the CEWH are likely to respond in each of the five different climatic scenarios. These are summarised in Table 1 on page 12.

- **Very Dry:** In this scenario, under the current rules in the Act, sale of environmental allocation will not occur as the environment will require all the allocation it can access. Conversely, purchase of additional allocation is unlikely as the market price will be high.

  However, the CEWH ought to be in a position to offer allocation for sale to help protect regional irrigation communities.

- **Dry:** The discussion paper proposes that the CEWH would have incentives to sell water in dry seasons, as irrigation demand would be high so the market price would be high.

  The discussion paper suggests that some environmental assets require a cycle of wet and dry periods so the demands of irrigation and environment may be counter-cyclical. But without the flexibility described above, it is unrealistic to expect that the CEWH will sell in dry seasons, particularly in the southern Basin, as:

  - There is a commitment to keep the Murray Mouth open in most years. That requires a constant minimum flow.
  - There will always be assets that require watering somewhere in the connected, Basin and risks of political and legal challenge if the allocation is sold – even if the marginal environmental benefits of providing the additional water are limited and the watering would not have occurred under natural conditions.
  - The CEWH will use carryover to create a reserve for a possible sequence of dry and very dry years, and significant capacity for carryover is available in Victoria.

  As with the Very Dry scenario, the *Operating Rules* ought to include justification to promote release of allocation for trade.

- **Average:** Here the discussion paper anticipates few sales as the market price would not generate sufficient margin to provide funds to purchase larger volumes in future years.

  This is unduly restrictive. The legislation should be interpreted within the wider purposes of the Basin Plan *"to optimise economic, social and environmental outcomes…"* Sale of the CEWH's holding should be encouraged to meet these wider objectives even if the environmental outcomes are neutral.

- **Wet:** Here the discussion paper anticipates the CEWH purchasing allocation to maximise potential flows. That should benefit some irrigators. However, the dairy sector would be concerned about risks of crowding out and market dominance.

- **Very Wet:** Here the CEWH would be unlikely to either buy or sell as there would be plenty of water for the environment and the market prices would be low. Here the CEWH would use carryover as the main strategy.

It is encouraging to see the CEWH recognising the potentially mutual benefits available from water trading, with the CEWH selling in dry years and buying in wet ones. However, the requirements of Section 106(2) unduly restrict the likely sale of environmental holdings.

The trading rules and protocols for the CEWH's holdings should explicitly include consideration of wider economic and social impacts in the criteria for sale of the entitlement and allocation.

Trading in dry and very dry years

The greatest risk to irrigation communities occurs in Dry and Very Dry years, when traditionally dairy and horticulture have been able to access surplus allocation available through the temporary water market to meet their needs.

Much of that buffer has now been sold to the CEWH, putting at risk the viability of key sectors and communities. The ministerial *Operating Rules* should specify that the CEWH is authorised to sell water under the Dry and Very Dry scenarios. That sale will provide critical water to protect high value irrigation and community cohesion.

This strategy can also be shown to be consistent with good environmental outcomes in an ecosystem adapted to high variability in wetting and drying.

- Natural climate variability in the southern Basin would see extremes of inflows. In very dry years there would be minimal flows to river systems.
- By contrast, the system of storages all but guarantees the river will keep running even in years and seasons when this would not have occurred naturally.
- The storages also guarantee a minimum environmental allocation in most years.
- This is reinforced in Victoria, where under the reserve policy, water is set aside from inflows in the current year to provide minimum allocations for the next year.
- In Very Dry years, selling environmental allocations would be appropriate as this better mimics the variability of inflows as well as sustaining regional communities.

This approach would also recognise that the imperative to deliver water for critical human needs also delivers an in-channel environmental benefit that would not be available under natural conditions, when rivers ceased or nearly ceased to flow. At the same time, the floodplains would be in a natural drying phase.

In this scenario, environmental water holders would consider whether environmental allocation held in storage would deliver only marginal environmental benefits.

An example is the extreme conditions in the lower lakes in 2008-09. Even if all water available in the southern system had bypassed towns and irrigators, it was not enough to make a material difference to the level of the lakes or acidification risks.[7]

In a repeat of the same conditions, the environment's allocation against the entitlements would be around 200GL (Appendix 1). Some or all of this water could be considered 'surplus' to need under the 'minimum environmental need' scenario, and in the context of natural wetting and drying patterns across the Basin.

It also needs to be recognised that the environment will benefit from the additional but unnatural security of supply provided by the Snowy Mountains Hydro Scheme. Water diverted from the Snowy River and released into the Murray accounts for about 8% of its flows in average years, rising to 33% during dry years[8]. As such, it underpins the security of irrigation entitlements in dry seasons.

The ministerial *Operating Rules* should also restrict the CEWH in buying allocation in Dry and Very Dry seasons, because as a competitor, the CEWH could drive up prices and reduce access to much-needed water for irrigators.

[7] While the water may have assisted in diluting salinity caused by seawater intrusion through the barrages, a better solution is upgrading the barrages to minimise salt intrusion in the first place.
[8] Technical Paper 7: Management of the Snowy Hydro-electric Scheme, Gippsland Sustainable Water Strategy, http://www.water.vic.gov.au/__data/assets/pdf_file/0009/129069/Technical-Paper-7-Management-of-the-Snowy-Scheme.pdf, accessed 30 April 2012.

Table 1: Water trading behaviour by CEWH and irrigation sectors

Season		CEWH	Horti	Dairy	Rice
Very dry	Sell	No: will use for priority assets. But should sell to support regional irrigation communities and mimic natural variability of flow regimes	No: use for permanent plantings	Yes: when price above $300/ML	Yes: total allocation
	Buy	No: too expensive	Yes: to preserve permanent plantings	No: too expensive	No: too expensive
Dry	Sell	No: will use for priority assets and carryover for possible later very dry years.	No: use for permanent plantings	Yes: when price is above $300/ML and can rely on carryover	Yes: total allocation
	Buy	No: too expensive. Access should be restricted to reduce risks of competition in the market	Yes: to preserve permanent plantings	Yes: when price below $200/ML to supplement allocation	No: too expensive
Average	Sell	Yes: if after a wet period and carryover full No: if after dry season or carryover available	No: all allocation required	No: full use of allocation and carryover	Yes: when price is above $100/ML
	Buy	Yes: if after dry period and price is low. But minimise risk of market distortion	No: allocation sufficient	Yes: if price is below $100/ML to supplement allocation and carryover	No: too expensive
Wet	Sell	No: market price too low and carryover available	No: all allocation required	No: full use of allocation and carryover of surplus	No: as price is low
	Buy	Yes: if after dry years, market price is low and watering opportunities available	No: allocation sufficient	Yes: if price low and carryover available	No: use of allocation
Very wet	Sell	No: market price too low	No: all allocation required	No: limited market opportunities	No: market price too low
	Buy	Yes: if price low and watering opportunities available such as keeping Murray Mouth open	No: allocation sufficient	No: limited opportunity use or carryover	No: full allocation available

Water trading framework

The discussion paper recognises that the CEWH will inevitably affect water market dynamics whether or not it trades its holding. It is encouraging to see the CEWH recognising that its holding and behaviour will affect market dynamics.

The discussion paper makes proposals for a *Portfolio Management Strategy*. This would set out a proposed framework for the future use of the holding, including the use of water trading and carryover. This would help promote transparency and certainty.

The Portfolio Management Strategy and CEWH practice should be informed by criteria and principles that reflect the broader aims of the Act to optimise socio-economic outcomes as well as environmental values. Decisions on trading the Commonwealth's holding need to optimise outcomes across this suite of objectives.

The discussion paper also proposes to establish an independent advisory committee to provide advice on water trading issues. That committee should include representatives from irrigation communities to ensure that the practical and socio-economic impacts of trade are understood and taken into account.

Market engagement – trading products

This section in the discussion paper reviews the mechanisms by which the CEWH might interact with the water market. This recognises that the CEWH's involvement in the market is likely to affect both the price and the availability of water entitlements and allocations.

The section identifies a range of possible mechanisms and water products including:

- Tenders
- Expressions of interest
- Use of water brokers
- Online water trading platforms
- Options
- Covenants
- Other agreements

Markets work best with a large number of relatively homogenous, well-informed players. That way all participants have equal access to information and none has the size to unduly affect market outcomes. The CEWH does not fit within this model:

- It is far larger than other market players in terms of the size of its holdings.
- It is not driven by clear commercial criteria.
- It has different interests and incentives to other players.

The CEWH's access to the market poses a significant risk of distortions that would adversely affect other participants.

The most important principle is that any market presence should be predictable and transparent. The most effective way for these outcomes to be realised would be for the CEWH's market engagement to be through stand-alone mechanisms such as a tender or request for expressions of interest, that are outside the standard market. That way the water market can continue to operate with its standard participants and mechanisms, with minimal impact from the CEWH's behaviour.

'Options' are a potentially useful tool to explore in the future. They could allow an irrigator and the environment to 'share' rights of access to the allocation from an entitlement depending on some external factor such as rainfall.

An example is where an irrigator has an agreement with the CEWH whereby the irrigator retains their allocation for irrigation in dry and very dry years, and makes it available for the environment in wetter years. However, such options will only ever be a marginal aspect of the wider picture.

3. Dairy industry issues, concerns and priorities

Ministerial Operating Rules

This issue is reviewed *Water Trading Framework* in Section 2 above.

CEWH trade in the northern Basin

Much of the commentary above relates to CEWH trading activity in the Basin's highly regulated, southern connected system. Water management and trading regimes are rather different in the northern Basin, where they reflect largely unregulated river flows through catchments.

It is important to recognise these differences, and how they might alter CEWH trading behaviour and therefore any associated socio-economic impacts.

For example, it is expected that water recovery within the Condamine-Balonne (100GL) and Border Rivers (8GL) catchments will come primarily from flow-based entitlements (water harvesting).

As such, CEWH will hold entitlements to defined flow events that would likely be added to existing environmental flow provisions, or used to adjust environmental flow rules to achieve enhanced outcomes during low or other flow conditions.

It is not expected that CEWH will purchase farm-based infrastructure and thereby seek to harvest water to store for release later. The CEWH could achieve the same outcome through a funding reserve to purchase temporary water, an approach already used to facilitate a bird breeding event in the lower Balonne.

More generally, seventy-five per cent of the water taken in the Queensland Basin is flow-based. Of the remaining 25%, only the stored water in Beardmore Dam at St George and stored water as part of the lower Border Rivers schemes would be of significant interest to CEWH for the environment.

However, there is very little scope for efficiency gains in the St George scheme other than what has been achieved with a capacity-sharing arrangement. In both catchments, the volume of stored water entitlements that could be recovered for the environment is small relative to water harvesting.

SunWater had a target of 14GL mainly from St George and the Macintyre Brook scheme near Inglewood at an estimated cost of $40 million – this was rejected by SEWPAC. There has been no further interest from SunWater.

CEWH-held water harvesting entitlements in the Lower Balonne are tradeable (but not yet across the border into NSW), however it is understood that the option of just adding to flows with amended flow rules is gaining favour in Canberra. Flow-based water purchased in the lower Border Rivers is tradable in the area and into NSW.

The ministerial *Operating Rules* should therefore allow for the planning approach in Queensland, which uses flow-based rules to achieve environmental objectives and outcomes. These rules allow for stored releases, but are generally geared to enhance natural flow.

There are no impediments to the CEWH holding water entitlements but, as indicated, there has been no Queensland entity holding specific environmental entitlements, because environmental flow rules are an integral part of the water resource plans.

Any trading activity by CEWH in Queensland will need to adhere to the requirements specified earlier in this submission, where applicable. CEWH will be holding significant entitlements and could have a significant impact in the market place.

Further, any water purchases from schemes such as the St George channel scheme would face a defined termination fee based on fixed charges of at least 70%.

Carryover

The introduction of carryover has effectively 'privatised' the earlier allocation policy where unused water was returned to the pool at the end of the year and then reallocated among all entitlement holders the following season.

Carryover has provided a valuable tool to allow irrigators to manage allocation risk between seasons, in particular to reduce reliance on access to the market early in the season in years with low allocations.

A variety of carryover rules are in place in different jurisdictions, for example:

- **NSW:** the rules differ between valleys, but for NSW Murray, no carryover is allowed of High Security Entitlement as this is a small proportion of the total available allocation and has close to 100% security of supply.

  For General Security, a maximum of 50% can be carried-forward subject to a cap of 110% of entitlement at any time, so as allocations increase towards 100%, this triggers the spill of any water carried over.

- **Victoria:** has the most developed regime and allows carryover of both high and low security entitlement within two categories:

  - Within entitlement: A right to carryover unused allocation up to 100% of the entitlement held. The volume is immediately available for use or trade in the Allocation Bank Account (ABA) and is protected from risks of future spill. This effectively gives the holder a capacity share of the storage.

  - Above entitlement: A right to carryover more than 100% of entitlement. The extra water is held in a 'spillable water account' (SWA). This water cannot be used or traded and is at risk of spill until the Resource Manager makes a 'declaration' that the storages are at low risk of spilling. The declaration then triggers the transfer of that water from the SWA into the ABA for use and trade. If the storage spills before the declaration is made, then irrigators lose their share of the spilled water.

- **South Australia:** relies on accessing upstream storages to provide private carryover storage rights as part of the South Australian entitlement. A new policy will come into effect for the first time in July 2012, allowing carryover up to 20% of a water access entitlement, subject to storage space being available.

  A recent announcement indicates that unused allocation from 2012 cannot be carried over into the new season, due to the upstream storages being close to full already.

These differences between states create strong incentives to game the system, with players transferring allocation late in the season between states to maximise any differential advantage. As a result, all three states have recently announced a moratorium on temporary trade to minimise perverse outcomes.

In terms of the CEWH's use of carryover, there are two scenarios:

- A conservative model as in NSW and SA where there is limited carryover. Under this situation, the CEWH is likely to reach the limits of carryover at an earlier stage. That has several implications:

  - "*As water spills from full water accounts it is redistributed to other users.*"[9] This means that carryover from environmental allocations would automatically be returned to the pool to be redistributed to all holders for the next season. That is positive.

  - The CEWH is therefore more likely to trade any unused allocation, as it will be less able to carry forward any significant volume; or,

[9] NSW Office of Water, March 2011: *Water Management and Outlook for 2011/12 – NSW Murray and Lower Darling Regulated Rivers Water Sources*

- As a result of limited carryover, the CEWH may order environmental releases at less than optimum times to avoid its unused water returning to the pool.

- By contrast, in Victoria where the carryover rules are more generous, the CEWH may make greater use of carryover potential. That means that it is less likely to trade any unused allocation.

The CEWH's use of the carryover provisions has potentially profound implications. The rules were developed on the assumption that they would apply to a large number of relatively homogenous users. Now their effectiveness will be distorted by the presence of a single very large user with different interests and incentives.

For example, the CEWH benefits both from the ability to carryover entitlement between years and also from the environmental use of any water that spills, whereas irrigators loses any of their water that spills. That creates differential rights and interests.

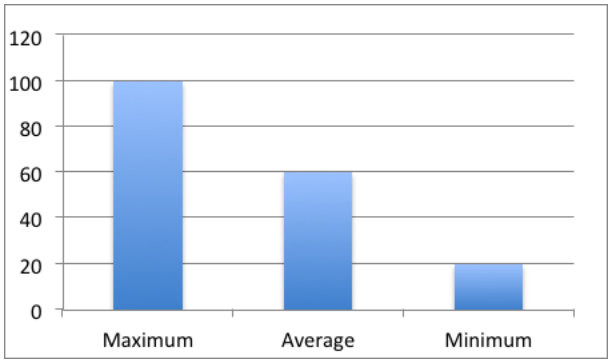
The carryover rules should be reviewed to minimise any distortions from the differential incentives of the CEWH.

Trading and size of Commonwealth environmental water holding

The CEWH will hold and release water from its environmental holdings to meet the needs of the watering plans. Those needs will vary between seasons to mimic the natural variability of rainfall and inflows. The CEWH will need high volumes in some years, low volumes in some years and average volumes in-between. Figure 1 provides an indicative example of the volume required in three scenarios.

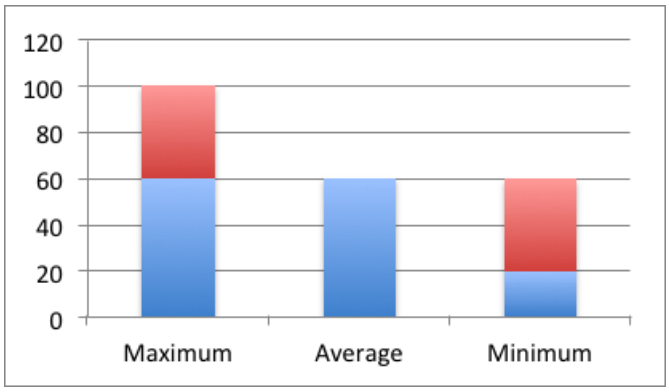
If the CEWH decides not to trade or use carryover then it will need to hold the maximum volume in all years, so that it can be confident that it can meet the maximum demand when needed, even though in most years it will not require the full volume. This will lead to major socioeconomic impacts as it will lock up the maximum volume from productive use.

Figure 1: Varying indicative water demands between years (GL)



By contrast, if the CEWH is willing to engage in water trading and carryover, then it can afford to hold only the average requirements for a catchment and then use water trading to sell or buy any surplus or additional water as needed. This is shown in Figure 2 where the area shaded in blue represents the average holding and the area shaded in red represents the volume traded.

Figure 2: Using markets to reduce the size of the indicative holding (GL)



This approach will minimise the impact on production in average years and will help provide additional water for use in irrigation in dry seasons.

Annual water charges for the CEWH

One concern for irrigators is that the CEWH will avoid the water charges that irrigators pay. That would mean that the unit costs of water charges would rise for the irrigators remaining, as they would also be paying for the environment's share.

This issue has two aspects. The CEWH has committed to paying storage charges for the use of the relevant headworks; these are calculated below. The second issue relates to whether the CEWH would be liable for use of district delivery infrastructure.

a) Victorian storage fees

This section analyses the fees that the CEWH will be liable to pay for entitlements held in northern Victoria. The CEWH is liable for *Entitlement Storage Fees* that cover the costs of capturing, storing and releasing water in the headworks managed by Goulburn-Murray Water.

The following table records three sets of data for storage charges in Victoria:

- The first pair of rows records the SEWPaC's current purchases for CEWH by catchment basin for high reliability water shares (HRWS) and low reliability water shares (LRWS);
- The second pair of rows records storage charges levied by G-MW by basin; and,
- The third pair of rows then calculates the charges that the CEWH will face for these current holdings.

Table 2: CEWH liability to storage charges in Victoria[10,11]

	UNIT	Broken	Goulburn	Campaspe	Loddon	Murray	Ovens	Total
HRWS	ML holding	47	221,351	6,366	2,796	249,669	50	**480,279**
LRWS	ML holding	4	18,065	395	644	17,469		**36,577**
HRWS	$/ML fees	24.92	6.98	16.14	26.63	10.16	31.50	
LRWS	$/ML fees	3.54	3.54	10.00		4.56		
HRWS	$ fees	1,171	1,545,030	102,747	74,457	2,536,637	1,575	**4,261,618**
LRWS	$ fees	14	63,950	3,950	0	79,659		**147,573**
	Total	**1,185**	**1,608,980**	**106,697**	**74,457**	**2,616,296**	**1,575**	**4,409,191**

[10] Data from SEWPaC's record of purchases to 29 February 2012.
[11] Charges from Goulburn-Murray Water at www.g-mwater.com.au/customer-services/feesandcharges

This identifies that the CEWH will be liable for an annual aggregate storage charge of $4.4M, with the majority of this recovered from the Murray system where the Commonwealth now holds 250GL of HRWS.

b) NSW storage fees

In NSW, bulk headworks charges are levied by State Water, with differential charging by regulated river system. The bulk water charges are in several parts:

- An entitlement charge: which is a fixed charge related to the volume of entitlement held. This recovers 40% of State Water's revenue. This charge distinguishes between:
    - High Security entitlements (which pays a premium for the higher security); and
    - General Security entitlements
- A usage charge for the volume of water recorded on the property meter. This recovers 60% of State Water's revenue. The same charge is payable for all water taken irrespective of its entitlement type, including Supplementary Flows; while
- Unregulated entitlements are controlled and charged for by the NSW Office of Water.

The primary concern in NSW is that the CEWH will not pay its fair share as it has few, if any, metered outlets so there will be little liability for the 'usage charges'. Supplementary Flows are a notable case in point as they only attract a usage charge.

In the following table it is assumed that the liability for usage charges depends on the different levels of security for the three entitlement types, with 100% for High Security, 70% for General Security and only 20% for Supplementary Flows.

Table 3: CEWH liability for bulk water charges from State Water in NSW[12]

River system	Entitlement	Volume	Fixed Charge	Charges	Usage Charge	Charges
			$/ML	$	$/ML	$
Barwon-Darling	Unregulated	14,603	5.73	83,675		
Border Rivers	High					
	General	269	3.48	936	8.64	1,627
Gwydir	High	375	12.51	4,691	12.53	4,699
	General	89,525	4.13	369,738	12.53	785,224
	Supplementary	19,100			12.53	47,865
Lachlan	High	733	10.01	7,337	16.29	11,941
	General	85,249	4.14	352,931	16.29	972,094
Lower Darling	High					
	General	492	2.32	1,141	4.89	1,684
Macquarie	High					
	General	93,703	3.93	368,253	12.45	816,622
	Supplementary	1,888			12.45	4,701
Murray	High	2,636	2.85	7,513	4.89	12,890
	General	244,047	2.32	566,189	4.89	835,373
Murrumbidgee	High	429	2.69	1,154	3.70	1,587
	General	142,724	1.60	228,358	3.70	369,655
	Supplementary	20,820			3.70	15,407
Namoi (upper)	High					
	General	105	9.00	945	19.55	1,437

[12] www.environment.gov.au/ewater/about/holdings.html - CEWH as at 31 March 2012

Namoi (lower)	High					
	General	6,098	9.00	54,882	19.55	83,451
Total NSW	High	4,173		20,695		31,117
	General	662,212		1,943,374		3,867,167
	Supplementary	41,808				67,973
	Unregulated	14,603		83,675		
	Total	**722,796**		**2,047,744**		**3,966,256**

This identifies that the CEWH will be liable for fixed headworks charges in NSW of $2 million and should also contribute a further $4 million in usage fees. However, a revised method of calculation will be needed to derive these charges as little of the CEWH's water use will be metered.

So taking Victoria and NSW together, the CEWH will be liable for annual fixed headworks charges of $6.4 million, with a further $4 million of potential usage charges.

It is critical that all these charges are recovered from the Commonwealth Government rather than through cross-subsidies from irrigators.

The CEWH's storage costs are currently being funded from the infrastructure budget in the Water for the Future Fund; once this funding source is exhausted, the Government will need to decide whether to continue covering these expenses from consolidated revenue as part of the annual Budget process, or require the CEWH to become financially self-supporting via trade of the very valuable asset it holds in the form of water entitlements and allocations.

Trade under these circumstances may well benefit irrigators, as it is more likely the CEWH would therefore sell water when it is scarce on the market and prices are higher, and buy when water is abundant and prices are low.

It is recommended that S106(2) of the *Water Act 2007* be amended to allow the CEWH to use trade as a mechanism to generate funds to contribute to the charges for which it is liable, subject to the provisions recommended earlier, to consider socio-economic impacts and avoid market distortions.

c) District charges

It is less clear how far the CEWH will pay for use of any irrigation district delivery infrastructure needed to get environmental water to the location required.

In northern Victoria, irrigation infrastructure is allocated between users in the form of Delivery Share. *Infrastructure Access Fees* are then charged based on the extent of the Delivery Share holding.

In the absence of owning Delivery Shares, the CEWH would be liable for the *Casual Infrastructure Use Fee*. This varies between $70/ML and $124/ML. Any extensive use of this facility would trigger a major cost.

d) Impact of the Basin Plan

This assessment refers solely to current holdings. The draft Basin Plan will potentially lead to a further significant transfer of entitlements from irrigators to the environment. Table 4 confirms the scale of the potential longer-term transfer of HRWS in northern Victoria if the current proposals in the Basin Plan are implemented entirely through buyback.

Table 4: Potential Basin Plan transfer of HRWS in northern Victoria (GL)[13]

System	2012	2019	Transfer	Reduction
GMID	1,192	820	372	31%
Regulated Rivers	175	128	47	27%
Total	**1,367**	**948**	**419**	**31%**

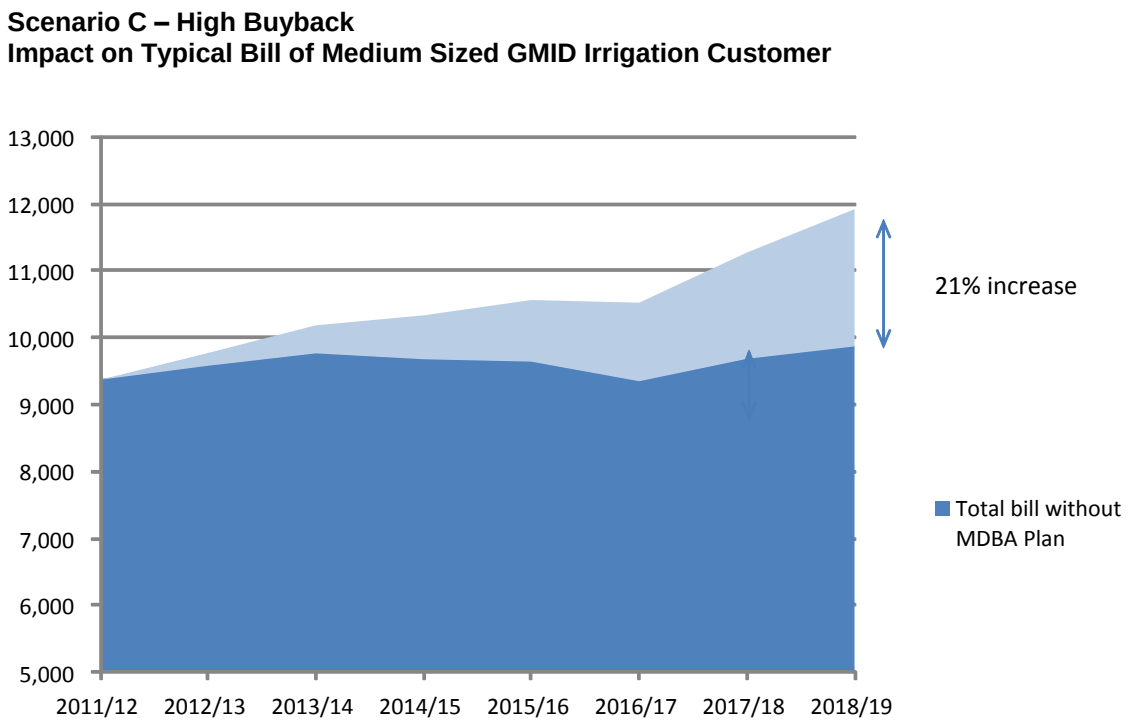
This would see the transfer of a further 419GL from irrigation to the CEWH. This would challenge the viability of Goulburn-Murray Water (G-MW) by:

- reducing the scale of the business below levels that meet economies of scale;
- potentially increasing the unit costs of supply across delivery infrastructure; and,
- reducing the revenue available to operate and maintain the supply system as the delivery share entitlement would be cancelled but the terms for NVIRP Stage 2 prohibit the use of Commonwealth funds to pay termination fees for this loss of Delivery Share.

It is therefore assumed that G-MW will be unable to recover the loss of revenue. G-MW estimates that this would lead to a 21% increase in medium-sized irrigation customers' bills to cover the costs of lost revenue (Figure 3).

The terms of the NVIRP funding should be amended to allow termination fees to be paid to minimise the future impacts on other irrigators in the Goulburn Murray Irrigation District (GMID).

Figure 3: Impact of Basin Plan on average G-MW customer bill[14]



[13] G-MW (2012) presentation to North Central Catchment Management Authority.
[14] *Op cit*

4. Conclusions

The discussion paper approaches the issue of trade and carryover in a more open and positive way than had previously been signalled by SEWPaC. That is a good starting position.

The discussion paper recognises that the CEWH will have an impact on water markets and trade, and the importance of the CEWH managing its holding in an active manner.

It is critical that the Commonwealth environmental water holding and water trading are not managed as stand-alone, discrete functions. They need to be addressed as part of a wider, integrated approach to sharing water resources across the Basin to optimise outcomes for all parties. This approach needs to encompass:

- The development of the overarching Murray Darling Basin Plan.
- State Water Resource Plans to implement the Basin Plan.
- The development of location-specific watering plans to confirm the assets to be protected or restored.
- The portfolio of environmental entitlements required to support those watering plans, ie. the size and mix of types of entitlement.
- The strategy for the acquisition of those entitlements, ie., through investment on-farm, and water-saving works and measures, as well as buyback.
- The use of those entitlements in delivering the required environmental outcomes.
- The role of water trading and carryover in that management regime.

This approach implements the wider objectives of the Water Act, not just the narrow requirements of Section 106. For example, Section 20 of the Act clearly states that:

The purpose of the Basin Plan is to provide for the integrated management of the Basin water resources in a way that promotes the objects of this Act, in particular by providing for: …
(d) the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes; and …
(g) improved water security for all uses of Basin water resources.

The CEWH discussion paper deals with water trading issues in a narrow context constrained by a narrow legal interpretation of Section 106 of the Act, rather than embracing the wider strategic intention of the Act expressed elsewhere.

The role of the CEWH and the management of the Commonwealth environmental water holding must be developed and implemented in a way that meets the wider objectives of the Act, not as a single separate function by itself.

5. Appendix 1

Allocations against environmental entitlements purchased by Federal Government as of 29 February 2012, in repeat of millennium drought

Climate scenarios ranked against inflows[15]		**moderate ~4000GL**		**dry ~2700GL**		**near-average ~6000GL**						**very dry ~1800GL**		**dry ~2700GL**		**very dry ~1800GL**		**average ~6000GL**		**very wet ~16,000GL**		**very wet ~16,000GL**	
Allocations table	enviro ent. ML 29/2/12	**2001-02**		**2002-03**		**2003-04**		**2004-05**		**2005-06**		**2006-07**		**2007-08**		**2008-09**		**2009-10**		**2010-11**		**2011-12**	
		%	**Vol**	%	**Vol.**	%	**Vol.**	%	**Vol.**	%	**Vol.**	%	**Vol.**	%	**Vol.**	%	**Vol.**	%	**Vol.**	%	**Vol.**	%	**Vol**
Murrumbidgee HS	103	95	**98**	95	**98**	95	**98**	95	**98**	95	**98**	90	**93**	90	**93**	95	**98**	95	**98**	100	**103**	100	**103**
Murrumbidgee GS	147,230	72	**106,005**	40	**58,892**	40	**58,892**	40	**58,892**	54	**79,504**	10	**14,723**	13	**19,140**	21	**30,918**	27	**39,752**	100	**147,230**	100	**147,230**
NSW Murray HS	2,636	100	**2636**	95	**2,504**	95	**2,504**	97	**2557**	55	**1450**	69	**1819**	25	**659**	95	**2504**	97	**2557**	100	**2636**	100	**2636**
NSW Murray GS	215,985	105	**226,784**	10	**22,679**	55	**118,792**	49	**105,833**	63	**136,071**	0	**0**	0	**0**	9	**19,439**	27	**58,316**	100	**215,985**	100	**215,985**
Lower Darling GS	492	100	**492**	100	**492**	30	**147**	100	**492**	100	**492**	0	**0**	50	**246**	50	**246**	100	**492**	100	**492**	100	**492**
Campaspe HRWS	6,366	100	**6366**	100	**6366**	100	**6366**	39	**2483**	31	**1973**	0	**0**	18	**1146**	0	**0**	0	**0**	100	**6366**	100	**6366**
Campaspe LRWS	395					0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	100	**395**	100	**395**
Goulburn HRWS	178,210	100	**178,210**	57	**101,580**	100	**178,210**	100	**178,210**	100	**178,210**	29	**51,681**	57	**101,580**	33	**58,810**	71	**126,529**	100	**178,210**	100	**178,210**
Goulburn LRWS	10,286	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
Loddon HRWS	2,796					67	**1873**	100	**2796**	100	**2796**	0	**0**	5	**140**	0	**0**	3	**84**	100	**2796**	100	**2796**
Loddon LRWS	644		**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
Vic Murray HRWS	204,943	100	**204,943**	100	**204,943**	100	**204,943**	100	**204,943**	100	**204,943**	95	**194,696**	43	**88,125**	35	**71,730**	100	**204,943**	100	**204,943**	100	**204,943**
Vic Murray LRWS	11,168	100	**11,168**	29	**3239**	0	**0**	0	**0**	44	**4914**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
SA Murray HS	88,226	100	**88,226**	100	**88,226**	95	**83,815**	95	**83,815**	100	**88,226**	60	**52,936**	32	**28,232**	18	**15,881**	62	**54,700**	67	**59,111**	100	**88,226**
Total volume	**869,480**		**824,921**		**488,921**		**655,640**		**640,119**		**698,677**		**315,948**		**239,361**		**199,626**		**487,471**		**818,267**		**847,382**

[15] River Murray system inflows (GL/yr), excluding Snowy and Darling, ranked against climatic scenarios. River Murray System Annual Operating Plan 2010-11 (Public Summary), p7. Murray Darling Basin Authority, http://www.mdba.gov.au/services/publications/more-information?publicationid=89, accessed 30 April 2012.