Queensland Government

Ref CTS 08968/08

Department of
Natural Resources and **Water**

12 SEP 2008

The Secretary
Senate Standing Committee on Rural and Regional Affairs and Transport
Parliament House
Canberra ACT 2600
Via email: rrat.sen@aph.gov.au

Attention: Ms Jeanette Radcliffe

Dear Ms Radcliffe

Please find enclosed Queensland's submission to the Senate Inquiry into Water Management in the Coorong and Lower Lakes – Implications for the Long-term Sustainable Management of the Murray Darling Basin System.

The submission addresses only the first part (Part 1) of the Terms of Reference for the inquiry, that is, water management in the Coorong and Lower Lakes. It explores the extent to which additional water can be found and secured in the Queensland section of the Murray Darling Basin and potentially delivered to meet the critical water needs of the Lower Lakes in the short term.

As you know, officials from my department and I participated in a teleconference with the Senate Committee on Tuesday, 9 September, 2008. During these discussions, Committee members requested to receive copies of some particular documents and information, and these are being forwarded under separate cover.

Part 2 of the Terms of Reference, namely the implications for the long-term sustainable management of the Murray Darling Basin system, will be addressed in a later submission to the Senate.

Should you have any further enquiries, please do not hesitate to contact Mr Greg Claydon, Executive Director, Strategic Water Initiatives of the department on telephone (07) 3224 2418.

Yours sincerely

Scott Spencer
Director-General

Enc

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QUEENSLAND SUBMISSION
TO
SENATE INQUIRY
INTO
WATER MANAGEMENT IN THE COORONG AND LOWER LAKES

11 September 2008

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This submission addresses the primary issue of water management in the Coorong and Lower Lakes which forms the first part (Part 1) of the Terms of Reference for the Senate Inquiry. It explores the extent to which additional water can be found and secured in the Queensland section of the Murray Darling Basin (MDB) and potentially delivered to meet the critical water needs of the Lower Lakes in the short term. A second submission addressing the matters raised in Part 2 of the Terms of Reference will be lodged in due course.

The submission provides estimates of the volume of water currently held in storages across the Queensland section of the Murray Darling Basin (MDB). As at 31 August 2008, it is estimated that there was about 666 GL in storage in Queensland. Of that, 136 GL was in public storage and 530 GL in private storage.

The submission highlights the limited water available in Queensland and the difficulties involved in accessing and delivering this water to solve the problems facing the Coorong and Lower Lakes. This is particularly the case given the ephemeral and highly variable nature of Queensland's river flows with mostly unsupplemented diversions, very high transmission losses from Queensland to the Lower Lakes, and the very high level of coordination of water pumping and releases required to maximise results.

The submission also discusses various issues and potential options for sourcing and delivering the limited water that may be available. From Queensland's perspective, these options are very limited, particularly in the short term. There may be some benefits in pursuing the water entitlement buy back process as a means of contributing more water to rivers and ecosystems at a local or sub-regional scale in key areas of the northern MDB.

This conclusion appears consistent with findings of other agencies, including the Commonwealth Government and CSIRO, about the limited scope and feasibility of sourcing water from the northern part of the basin to solve water management problems of the Lower MDB.

With finalised water resource plans in place in all its MDB valleys, the Queensland Government will continue to play its part and work cooperatively with the Commonwealth Government and other jurisdictions as well as the communities and stakeholders involved in addressing the challenges of water management in MDB and achieving the desired outcomes in the future.

1.0 Introduction

This submission has been prepared by Queensland Department of Natural Resource and Water in response to the Terms of Reference for the Senate Inquiry into Water Management in the Coorong and Lower Lakes – Implications for the Long-term Sustainable Management of the Murray Darling Basin System.

The submission addresses the primary issue of water management in the Coorong and Lower Lakes which forms the first part (Part 1) of the Terms of Reference. Part 2 of the Terms of Reference will be addressed in a later submission to the Senate. In essence, however, Queensland supports development of a Basin Plan under the provisions of the Commonwealth Water Act to be amended in accordance with the Intergovernmental Agreement (IGA) signed at the COAG meeting in July 2008.

Section 2 of this submission provides estimates of the volume of water currently held in storages across Queensland along with some insight into the volume of water which could potentially be made available for downstream passage to the southern parts of the basin with a view to replenish the Lower Lakes and Coorong (Part 1a of the Terms of Reference).

Section 3 of this submission provides information relating to various options for potentially sourcing and delivering this water as outlined in Parts 1b (i) to (v) of the Terms of Reference.

Water buybacks have been identified as a source of water to address environmental and over-allocation problems in the Murray Darling Basin. Section 4 of this submission notes the importance of addressing the impact of any water buybacks on rural and regional communities (Part 1c of the Terms of Reference).

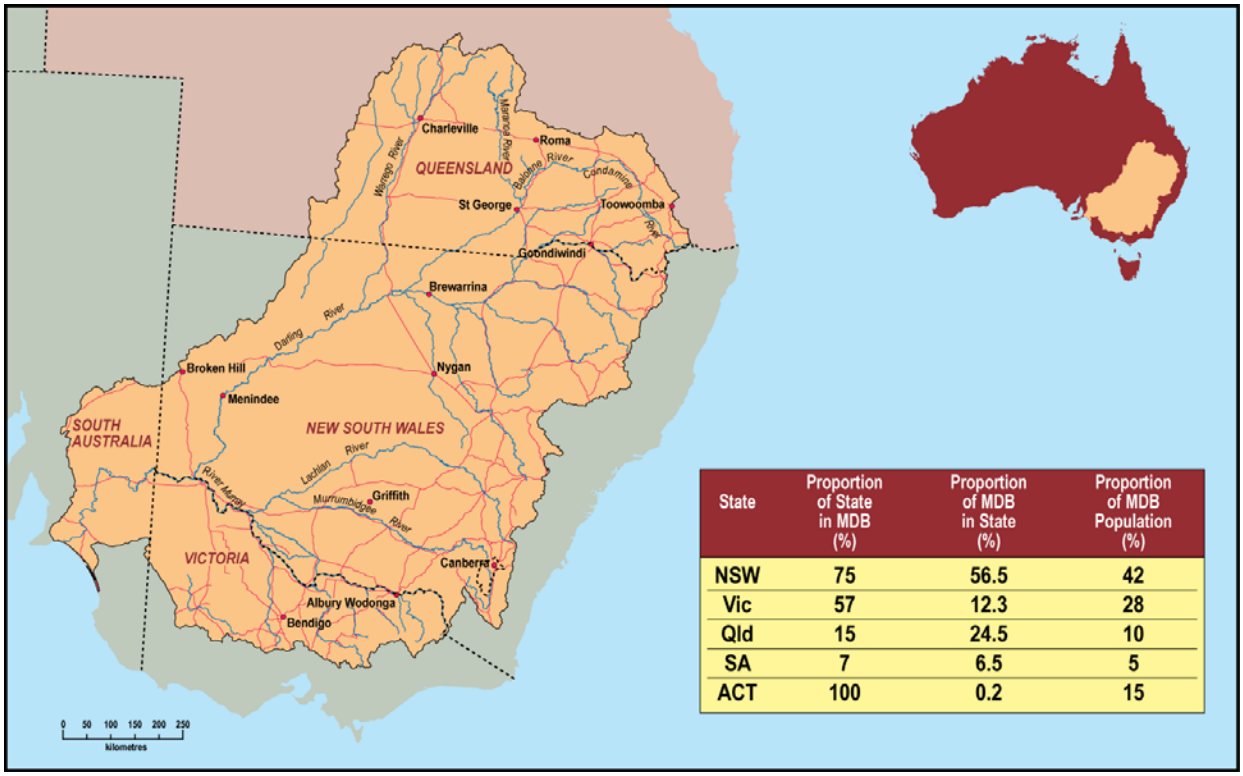
Finally, Section 5 of this submission discusses some other related matters (Part 1d of the Terms of Reference).

2.0 Volume of water which could be potentially provided downstream to replenish the Lower Lakes and Coorong

This section provides a snapshot of the current water availability situation for the Murray Darling Basin (MDB) in Queensland.

2.1 Background

As shown in the following map, the MDB covers some 1 061 469 square km of which 260 011 square km (about 25%) is in Queensland.



State	Proportion of State in MDB (%)	Proportion of MDB in State (%)	Proportion of MDB Population (%)
NSW	75	56.5	42
Vic	57	12.3	28
Qld	15	24.5	10
SA	7	6.5	5
ACT	100	0.2	15

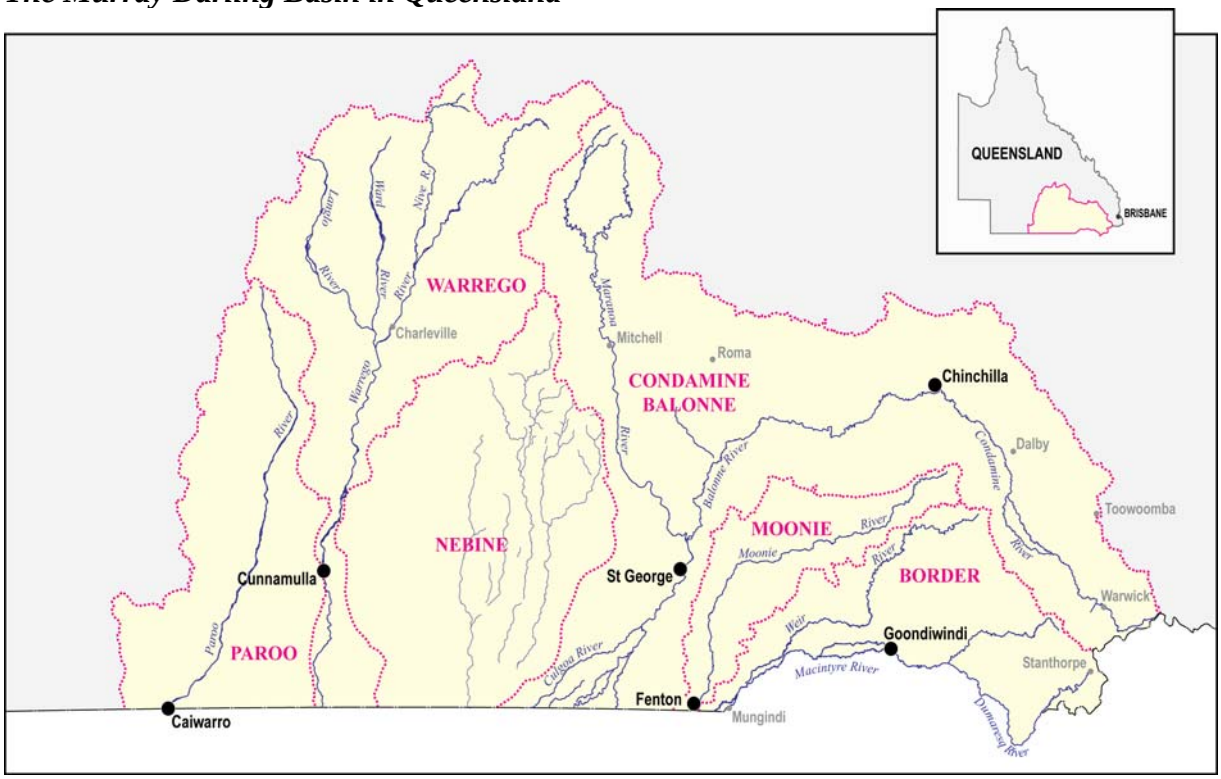
The MDB river system is approximately 4 300 km long (from the source of the Condamine to the mouth of the Murray). Major Queensland rivers in the MDB are the Condamine Balonne, Queensland Border Rivers, Moonie, Warrego, Paroo and Nebine as shown in the following map.

On an average annual basis, hydrologic modelling indicates that Queensland contributes about 11% of all inflows into the whole MDB catchment but only about 1% of the outflows at the mouth of the Murray originate in Queensland.

This low contribution is primarily a consequence of natural river processes such as instream seepage, evapo-transpiration and floodplain wetting as well as diversions as flows travel downstream from Queensland to the mouth of the Murray. Only large flood flows make it to the end of the Darling as the Menindee Lake system exists as an extensive and effective barrier to the natural passing of flow emanating from the various tributary streams of the northern basin. It is only extremely large infrequent flooding events in the northern Basin which will contribute to flows at the mouth of the Murray.

On average, Queensland extracts less than 5% of the total diversions in the Murray–Darling Basin. The diversion and contribution percentages vary considerably on an annual basis as Queensland rivers flow intermittently and there are no very large dams in streams. This is in contrast to southern valleys where the rivers are controlled by large in-stream storages and other works and tend to flow throughout the year.

The Murray Darling Basin in Queensland



Under the provisions of the Queensland Water Act 2000, statutory based Water Resource Plans have been finalised for all MDB catchments in Queensland, namely the Queensland Border Rivers, Condamine-Balonne, Moonie, and Warrego-Paroo-Bulloo-Nebine catchments. These plans are recognised as transitional water resource plans under the Commonwealth Water Act 2007.

These plans provide the framework for sustainable water allocation and management, and provide for environmental flows and secure water entitlements for users. Further information about these plans is available on the website of the Queensland Department of Natural Resources and Water www.nrw.qld.gov.au.

2.2 The Nature of Water Flows and Diversions

River flows in the Queensland part of the MDB are highly variable, with little to no permanent baseflows and long periods of no flow (drought & flood cycle). Annual streamflow is dominated by summer rainfall and is most variable in the Queensland section of the MDB. Rivers generally decrease in natural capacity downstream with significant portions of flow spreading out onto floodplains and into wetlands. This is all part and parcel of the geography and aquatic ecosystem landscape of the northern Darling.

Water diversions in the Queensland section of the MDB in any given year are a combination of "supplemented" (drawn from public storages), "unsupplemented" (drawn primarily from natural rivers and watercourses with no artificial storages) and "overland flow" (drawn from flows across flood plains), and "groundwater"

extractions. On average, supplemented diversions account for about 15% of total Queensland MDB diversions, unsupplemented water harvesting 58%, overland flow 14% and groundwater about 14%. Diversions occur under conditions and controls outlined in the Queensland Water Act 2000, the Water Regulation 2002 and respective Water Resource Plans. These statutory plans require that there be no increases in take permitted above that provided for in the plans. Controls exist to legally limit supplemented, unsupplemented and overland flow takes.

"Unsupplemented" diversions predominate. Limitations on take are prescribed in water sharing rules outlined in each water resource plan (WRP) and resource operations plan (ROP) for the respective valleys. These plans also specify stream flow levels which must be exceeded before diversions can occur.

Flows are measured at a number of gauging stations to industry standards. Diversions are measured through water meters or measuring devices in on-farm storages.

2.3 Water Available in Storages (as at 31 August 2008)

Water held in storage in Queensland Murray Darling valleys falls into two categories, public and private (on-farm).

2.3.1 Water available in public storages

The following table provides available information estimated at the end of August in the major public storages in the Queensland section of the MDB:

Condamine-Balonne Catchment

Storage	Percent Full as at 31 August 2008 (%)	'Active' storage – 31 August 2008 (GL)	Full Storage Capacity (GL)	Notes
Cooby Dam	17	1.87	24	Toowoomba urban water supply
Leslie Dam	15	13.47	106	Warwick urban water supply and Upper Condamine WSS
Chinchilla Weir	59	5.45	10	Chinchilla urban water supply and Chinchilla WSS
Beardmore Dam	38	27.78	81	St George WSS
Jack Taylor Weir	92	7.65	10	St George urban water supply and St George WSS
Neil Turner Weir	100	1.3	1.5	Maranoa WSS

Border Rivers

Catchment

Storage	Percent Full as at 31 August 2008 (%)	'Active' storage – 31 August 2008 (GL)	Full Storage Capacity (GL)	Notes
Glenlyon Dam	32	80.8#	254 GL	Supports NSW / Qld supplemented water system – # available water shared with NSW
Coolmunda Dam	68	46.5	69 GL	Macintyre Brook WSS

Note – (1) WSS refers to a supplemented water supply scheme operated by SunWater (Queensland water supply provider) and where most of the water use is for irrigation (2) 'Active' storage is the part of current storage (minus dead storage) which is available for water supply.

Public storage levels are generally low. As at 31 August 2008, a total volume of 136 GL exists in public storages spread over a number of dams and weirs. Existing water in these public storages are essentially for critical human needs with some for irrigation purposes. Spare capacity for release downstream is therefore extremely limited.

2.3.2 Water available in private storages

It is estimated that, as at 31 August 2008, about 530 GL was stored in private off-stream storages throughout the MDB in Queensland. About 310 GL of this amount (nearly 60%) is located in on-farm storages in the Lower Balonne.

The following table illustrates the combined volume of water available in private and public storages across the various Queensland MDB valleys:

Estimated available water in Queensland MDB catchments as at 31 August 2008

Valley	Private Storage (GL)	Public Storage (GL)	Total Volume (GL)
Condamine Balonne			
• Condamine	65	21	86
• Lower Balonne	310	35	345
Border	120	80	200
Moonie	20	-	20
Nebine	-	-	-
Warrego	15		15
Paroo	-	-	-
Whole MDB in Queensland	**530**	**136**	**666**

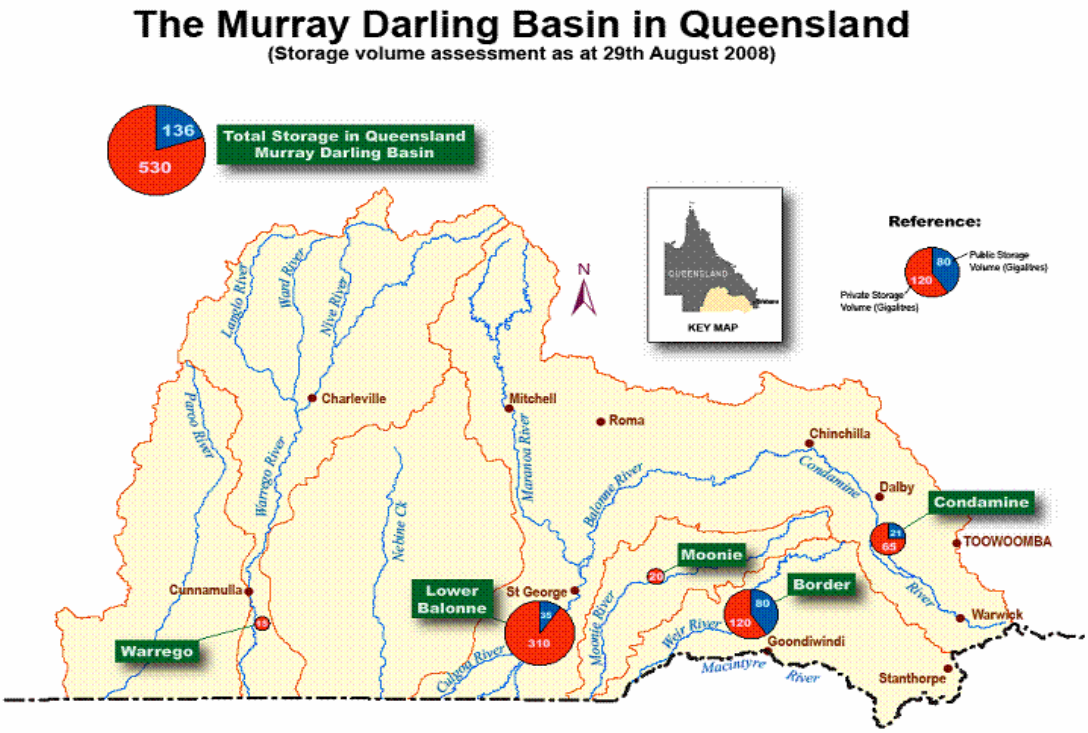
Note: Our understanding of what water is currently held in private storage is built on a combination of

- knowledge of what water was diverted last summer when flows occurred and diversion opportunity was triggered
- broad assessment of storage losses (primarily evaporation) over the past 6 to 8 months since the diversions occurred

- broad assessment of the extent to which water has been used in the various regions across Queensland valleys to support the irrigation of winter crops.

These storage figures for Queensland are consistent with a recent preliminary audit undertaken by the MDBC (released on 7 Aug 2008) which estimated that there was 800 GL of privately held water in northern MDB storages, with in excess of 500 GL of that located in Queensland.

The map below shows the distribution of water storage across the Queensland basin.



3.0 Options for sourcing and delivering water to the Lower Lakes

3.1 Possible incentive and compensation schemes for current water holders who participate in a once-off voluntary contribution of water to this national emergency

As outlined previously, in the Queensland section of the MDB, most of the water entitlements are 'unsupplemented' with water accessed through a combination of 'water harvesting' from stream flow or take from 'overland flow' and is often stored in private on-farm dams (or ring tanks). This is in contrast to the southern MDB where the entitlements are mostly 'supplemented' and regulated via a major public storage.

The Commonwealth Government recently announced a tender to purchase water entitlements, as the first part of a $350 million commitment agreed at the July COAG

meeting to buy back water entitlements in the Queensland section of the MDB. This commitment was, in turn, a part of the Queensland priority project called 'Healthy Headwaters Project' costing up to $510 million to be spent in Queensland for irrigation planning and infrastructure investment and for water purchasing from willing sellers.

The Commonwealth scheme is focussed on permanent sales. While consideration could be given to possible incentives for a once-off voluntary contribution of water in the next few months, the prospects of achieving beneficial flows to the lower lakes are minimal. Given the limited amount of water available in storage, the dry riverbed and floodplain across the MDB, likely transmission losses involved (in the order of 70-80% from the Queensland border to Menindee Lakes with possible losses of a further 50% from there to the Lower Lakes), distances (thousands of kilometres) and travel times (in months) significant quantities of beneficial water are simply not available.

Even if all existing stored water could be accessed, and releases fully coordinated, the volume reaching the Lower Lakes from Queensland is unlikely to exceed 30-40GL and would not reach this destination for many months.

Queensland will cooperate with the Commonwealth to establish administrative arrangements to support buybacks of water entitlements in the Queensland section of the MDB. Queensland is currently working with the Commonwealth officers and key stakeholders to develop the most appropriate arrangements for all involved. Buybacks offer scope particularly to provide more water to rivers, wetlands and floodplains at a more local scale in key areas of the northern part of the basin. Buybacks may also realise a range of beneficial outcomes to significant environmental assets elsewhere in the Basin such as the Ramsar listed Narran Lakes.

3.2 Alternative options for the acquisition of sufficient water

Due to limited water available in Queensland storages, and difficulties and losses involved in possible access and delivery of Queensland water to the Coorong and Lower Lakes there are no feasible alternative options in Queensland.

3.3 Likely transmission losses and the most efficient and effective strategies to manage the delivery of this water

As noted above, transmission losses are likely to be very high in moving water down from the northern MDB catchments. Queensland's highly variable and ephemeral river systems, with minimal on-stream storage contribute to this situation. Losses tend to be higher in Paroo, Moonie and Warrego systems. The Paroo is essentially a terminal river system and it takes an extreme runoff event for overflow to occur to the Darling (vis one in 50 to 100 year order of flow event). With the Warrego, the geomorphology and hydrology of this river system is such that once flow passes

Cunnamulla a natural bifurcation occurs which passes up to one half of the flow across to the Paroo. The remaining half remains in the Warrego and, with about 250 kilometres of floodplain country to meander across and a relatively low channel capacity, significant volumes escape to the floodplain along the way.

The losses will differ between wet and dry years. The largest losses in the systems are associated with flooding and evapotranspiration from floodplain forests, lakes and wetlands (e.g. Paroo). Hence, during very wet and dry years, delivery efficiencies are considerably lower than the average.

The MDBC advise that there would be 70-80% transmission losses from the Queensland/NSW border to Menindee Lakes and further 10-50% transmission losses in transferring water from Menindee to the Lower Lakes, depending on antecedent and current conditions.

Due to delivery inefficiency the potential percentage contribution of Queensland flows to the flow at the end of the Darling is small and at the mouth of Murray is indeed negligible, particularly during very dry years.

3.4 Commonwealth powers to obtain and deliver water and possible legislative or regulative impediments

Water purchased by the Commonwealth for environmental purposes will be subject to the provisions of Queensland's resource operations plans under the Queensland Water Act 2000. Because, in almost all cases, this water will not be stored in any on-stream dam, arrangements need to be made to ensure that it can be moved through natural river systems to the desired location. The Department of Natural Resources and Water will be required to "shepherd" flows emanating from purchased water down through the watercourses in Queensland by activating necessary announcements and/or adjusting flow diversion thresholds upwards, to restrict the take of this water by downstream irrigators.

The Commonwealth would need to enter into appropriate contracts with owners of private on-farm water storages if the Commonwealth wanted to have the water currently in those storages conveyed into a watercourse and thence delivered further downstream. The Queensland Government would cooperate with the Commonwealth Government and the landholders involved to ensure that the water could continue down the system in Queensland (and suitable arrangements would also have to be activated in NSW and potentially further downstream). Such arrangements were put in place earlier this year when about 11GL of additional water was delivered from on-farm storages in the Lower Balonne in Queensland about 200km downstream to the Narran Lakes in NSW to extend a bird breeding event beyond what would have occurred naturally. In some instances, in-stream structures such as bi-furcation weirs may have to be modified to obtain the most efficient conveyance of the water resource.

3.5 Assessment of the potential contribution of bringing forward irrigation infrastructure spending under the COAG agreement to deliver water to save the Coorong and Lower Lakes

Queensland's 'Healthy Headwaters Project' includes a principal component (amounting to some $160million) to improve irrigation infrastructure that will lead to improved water use efficiency (for Queensland irrigators and SunWater operations) and increased availability of water for the environment. Queensland is committed to implementing this initiative as soon as practicable.

4.0 Impact of water buybacks on rural and regional communities and Adelaide including compensation and structural adjustment

Queensland stakeholders and communities have raised concerns about the impact of water buybacks. There are significant industries in the Queensland section of the MDB and welfare of many rural and regional communities need to be considered if substantial water buyback occurs. Queensland is of the view that because of the significance of the issue and the associated risks, impact assessment must be an integral component of the scheme. Such an assessment would provide insights into the appropriate process to be adopted for implementation of water buyback schemes as well as mitigation measures to minimise potential impacts.

5.0 Other Related Matters

Queensland has been actively cooperating with the Commonwealth and other jurisdictions to develop and progress the Intergovernmental Agreement (IGA) for MDB reform and amendments to the Commonwealth Water Act. Queensland supports the development of a Whole of Basin Plan as a longer term strategic approach to water planning and management in the Basin. Queensland will continue to cooperate with the Commonwealth and other jurisdictions in relation to the IGA, including its implementation as required.