Review of Cap Implementation 2005/06
Report of the Independent Audit Group

Including Special Audit of the Barwon-Darling/Lower Darling and Responses by the five States and Territory Governments

MARCH 2007
Integrated catchment management in the Murray–Darling Basin

A process through which people can develop a vision, agree on shared values and behaviours, make informed decisions and act together to manage the natural resources of their catchment: their decisions on the use of land, water and other environmental resources are made by considering the effect of that use on all those resources and on all people within the catchment.

### Our values

We agree to work together, and ensure that our behaviour reflects the following values.

**Courage**
- We will take a visionary approach, provide leadership and be prepared to make difficult decisions.

**Inclusiveness**
- We will build relationships based on trust and sharing, considering the needs of future generations, and working together in a true partnership.
- We will engage all partners, including Indigenous communities, and ensure that partners have the capacity to be fully engaged.

**Commitment**
- We will act with passion and decisiveness, taking the long-term view and aiming for stability in decision-making.
- We will take a Basin perspective and a non-partisan approach to Basin management.

**Respect and honesty**
- We will respect different views, respect each other and acknowledge the reality of each other's situation.
- We will act with integrity, openness and honesty, be fair and credible, and share knowledge and information.
- We will use resources equitably and respect the environment.

**Flexibility**
- We will accept reform where it is needed, be willing to change, and continuously improve our actions through a learning approach.

**Practicability**
- We will choose practicable, long-term outcomes and select viable solutions to achieve these outcomes.

**Mutual obligation**
- We will share responsibility and accountability, and act responsibly, with-fairness and justice.
- We will support each other through necessary change.

### Our principles

We agree, in a spirit of partnership, to use the following principles to guide our actions.

**Integration**
- We will manage catchments holistically; that is, decisions on the use of land, water and other environmental resources are made by considering the effect of that use on all those resources and on all people within the catchment.

**Accountability**
- We will assign responsibilities and accountabilities.
- We will manage resources wisely, being accountable and reporting to our partners.

**Transparency**
- We will clarify the outcomes sought.
- We will be open about how to achieve outcomes and what is expected from each partner.

**Effectiveness**
- We will act to achieve agreed outcomes.
- We will learn from our successes and failures and continuously improve our-actions.

**Efficiency**
- We will maximise the benefits and minimise the costs of actions.

**Full accounting**
- We will take account of the full range of costs and benefits, including economic, environmental, social and off-site costs and benefits.

**Informed decision-making**
- We will make decisions at the most appropriate scale.
- We will make decisions on the best available information, and continuously improve knowledge.
- We will support the involvement of Indigenous people in decision-making, understanding the value of this involvement, and respecting the living knowledge of Indigenous people.

**Learning approach**
- We will learn from our failures and successes.
- We will learn from each other.
Review of Cap Implementation 2005/06

Report of the Independent Audit Group

Including Special Audit of the Barwon-Darling/Lower Darling Cap Valley

Independent Audit Group Members

Dr Wally Cox (Chair)
Paul Baxter
Denis Flett

MARCH 2007
Acknowledgments

The Independent Audit Group appreciated the cooperation of State and Territory Government agencies and the Murray-Darling Basin Commission.

Information continues to be freely provided and the issues and the options for resolving them were discussed openly.
Dear Minister,

We have pleasure in submitting to you our Review of Cap Implementation 2005/06. Council established the Cap in 1995 and set the operating framework in 1996.

There has been considerable progress in implementing the Cap in South Australia and Victoria, however as of October 2006 Cap arrangements have still not been finalised by the ACT and Queensland and for the Border Rivers and intersecting streams within New South Wales.

Development of, and calibration of models for predicting annual climate adjusted diversions as a basis of comparing with actual diversions and Cap compliance are critical to successful Cap implementation. We continue to encourage states and the ACT to submit models for audit and accreditation.

The only river valley again to exceed the Schedule F Trigger for a special audit in 2005/06 was the combined Barwon-Darling/Lower-Darling (for the third year in a row) and the IAG after a special audit, as requested by the commission, determined that the valley continues to be in breach of the Cap.

We draw to your attention a number of specific additional issues in the report.

Yours sincerely

DR WALLY COX
Chairman

PAUL BAXTER
Member

DENIS FLETT
Member
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Executive Summary

Following the adoption of Schedule F by the Council for operationalising, monitoring and reporting on Cap implementation, this audit was conducted in line with the requirements of Clause 13 of the Schedule.

At 9116 GL, diversion from rivers in the Murray-Darling Basin was the sixth lowest in the period since 1983/84 reflecting drought conditions throughout most of the Basin. The last four years constitute four of the lowest six years of diversion in the same period.

The 2005/06 audit identifies progress in each of the states and ACT in establishing and/or operationalising the Cap. The key issues are:

- ongoing delays in finalising Cap targets for river valleys in Queensland, New South Wales and the ACT;
- accreditation of models for Cap assessment;
- skills shortages; and
- water resource management.

At present, no Caps have been established for Murray-Darling Basin Valleys in Queensland, the ACT and the Border Rivers in New South Wales.

Following an Interim Inter-governmental Agreement between the New South Wales and Queensland governments, the Water Sharing Plan and Resource Operation Plan in New South Wales and Queensland respectively for the Border Rivers are progressing. A draft Water Sharing Plan is expected to be available in June 2007 and a final Resource Operation Plan in August 2007. Both, when finalised, establish the basis for a Cap for the Border Rivers with New South Wales expecting to submit a Cap proposal in June 2007 and Queensland no later than the end of February 2008.

The Resource Operation Plans for the Moonie, Warrego, Nambucca and Paroo were gazetted in January 2006 and Cap proposals were submitted to the Commission in November 2006. These were audited by the IAG in February 2007, and recommended to the Commission.

The Resource Operation Plan for the Condamine-Balonne is further delayed and a draft is not expected to be released for public consultation until early March 2007 with finalisation expected by December 2007. Queensland has committed to submitting a Cap proposal no later than six months from the completion of the Resource Operation Plan.

The ACT has not forward a proposal for a Cap. As the ACT is now a full member of the Commission and Council it would demonstrate responsible leadership by finalising a Cap for the ACT. The IAG recommends that the ACT submits and finalises a Cap proposal by October 2007.

Only three models have been accredited to date being the Lachlan, Namoi and South Australia All Other Purposes. The Macquarie, Peel, Gwydir and Goulburn/ Campaspe/Loddon models have been submitted for accreditation and are being audited.

The NSW and Victorian Murray, the Murrumbidgee and the Lower Darling models are expected to be ready for auditing by December 2006. This leaves two models outstanding for valleys for which a Cap has been defined.

The IAG continues to recommend that all models be audited and accredited with modified targets for completion of June 2007 for the Murray and Lower Darling (MDBC), July 2007 for Victoria and New South Wales, and on completion of the Resource Operation Plans by Queensland and prior to establishing a Cap for the ACT.

Water reform has been a major priority within Australia since the Council of Australian Governments set a clear direction in 1994. Specific initiatives include the Cap on water diversions in the river valleys of the Murray-Darling Basin, The Living Murray project and more recently the National Water Initiative. In addition each State/Territory has additional projects consistent with the national framework but focussing on local priorities.

It has become evident to the Independent Audit Group during the recent audits for Review of The Living Murray Implementation and Review of Cap Implementation that skills shortages and to a lesser degree financial constraints are limiting the rate of water reform implementation. Discussions with Commonwealth/State/Territory officers highlighted the shortage across all the science/engineering and related professions associated with water resource management. Given the unprecedented level of demand from the mining sector and their more competitive remuneration packages the public sector is not competitive in recruiting or retaining experienced professionals.
The IAG recommends that the Ministerial Council:

i. note that skills shortages are affecting the rate of water reform implementation including finalisation of Cap implementation; and

ii. develops a strategy in partnership with other stakeholders to attract additional skilled resources into the water sector for both the short and long term.

The Ministerial Council agreed in June 1995 to introduce a Cap on diversion of water from river valleys in the Murray-Darling Basin. The Cap established in 1995 applied to 1993/94 levels of infrastructure, water diversions and operating rules. It generally applied to diversions from storages and rivers for consumptive use. In response to market forces, operating rules and climate changes, growers and irrigation scheme operators have recognised the scarcity value of water. In addition there have been significant impacts on inflow into waterways from plantations, increases in the number and size of farm dams, interception of overland flows, bushfires, return flows from irrigation and increased use of groundwater.

It is the view of the IAG that the issues of integrated water cycle management need to be addressed at a Basin scale. The Cap only addresses one aspect and in itself does not address the many other strategic issues associated with environmentally sustainable outcomes for the Murray-Darling Basin.

The IAG recommends that the Commission expedite the development of strategies to address integrated water cycle management in the basin including the management of farm dams, plantations and groundwater use.

The conclusions and recommendations reached by the Audit Group for the 2005/06 year by State and Territory are:

**South Australia**

- Diversions in 2005/06 were constrained as a result of restrictions early in the season and were within the annual Cap targets for Metropolitan Adelaide, Country Towns and All Other Purposes Cap valleys;
- Diversions for the Lower Murray Swamps Cap valley are currently not fully metered and are assumed to equal the Cap;
- South Australia has a reliable measuring system, which continues to improve, for urban and irrigation use;
- The South Australian All Other Purposes Cap model was approved by the Commission in November 2004, the second such model to achieve that distinction;
- The IAG recommends that South Australia develop a model of diversions from the River Murray for Metro-Adelaide. This model should simulate urban demand, inflows from the local Adelaide Hills Catchments and the operation of the supply system. It should be used to generate annual Cap targets and should be accredited by June 2009;
- In the interim South Australia should continue to provide a sufficient allocation to the “First Use License” to cover estimates of growth; and
- As part of the review of Schedule F, South Australia has proposed that the following changes be made:
  - Amalgamate remaining Lower Murray Swamps Cap components with the All Other Purposes Cap while retaining the Environmental Land Management Allocation as a non-tradable component linked to the Lower Murray Swamps within the All Other Purposes Cap;
  - Consider amalgamation of the Country Towns Cap component, within All Other Purposes; and
  - Calculate the exchange rate for interstate trade based on ratio of the combined Cap and the combined licensed allocation.

This is supported by the IAG as it has no impact on the Cap volume within South Australia and is administratively more convenient.

**Victoria**

- Diversions for the Murray/Kiewa/Ovens Valley and Campaspe in 2005/06 were all below annual climate and trade-adjusted Cap targets;
- Cumulative diversions since 1997 for all valleys are in credit;
- Accreditation of models for the Goulburn/Broken/Loddon and Campaspe Valleys is now expected by December 2006;
- Bulk water entitlements have been finalised for major valleys; and
Significant changes for Cap management and implementation will continue as a result of changes agreed to as part of the National Water Initiative, the Living Murray project and other specific Victorian Government projects particularly in relation to provision for water for the environment resulting from water saving projects and other initiatives.

**New South Wales**

- Diversions in 2005/06 were 4987 GL compared to 3666 GL in 2004/05;
- IQQM Cap models have now been prepared for all river valleys, with the exception of the Murray and Lower Darling. Further recalibration has occurred and the models are awaiting accreditation;
- the Mulwala Loss Allowance should not be subtracted from the NSW Murray Cap Diversion under the current rule. Should the Council choose to change the rule by amending the Register of Diversion Definitions in future to allow the Mulwala Loss Allowance subtraction, the IAG recommends that the Council should give prior consideration to the consequences of the decision on the integrity of the Cap;
- The preliminary Schedule F accounting for the 1997/98 – 2005/06 period indicates that diversions in the combined Barwon-Darling/Lower Darling Valleys are cumulatively 143 GL above Cap, and above the combined trigger for Special Auditing of 62 GL. Therefore a Special Audit is required for this valley although the IAG notes that the combined Barwon-Darling/Lower Darling Valleys has already been declared to be in breach of the Cap and the NSW authorities, in acknowledging the breach, advise that they have no additional information beyond that already provided to the IAG that would be relevant to a further Special Audit at this time;
- Following the Special Audit on the basis of available information, the IAG determines that the combined Barwon-Darling/Lower Darling Cap valley continues to be in breach of the long-term diversion Cap;
- The IAG has been unable to assess the Cap compliance of the NSW Border Rivers because the Cap has not been defined in that valley. The IAG has previously expressed concern that the Border Rivers will be found to be in breach once a Cap is defined. Finalisation of a Cap together with agreed Water Management Plans are expected in June 2007 although the first series of usage data will not be available until the 2007/08 year;
- Diversions have been below Cap for other valleys in NSW; and
- Upon completion of the integrated 1993/94 and current conditions model for the Border Rivers, NSW should submit the proposed Cap for that system for assessment by the IAG of the appropriate allowance for the enlarged Pindari Dam.

**Queensland**

- Diversions in 2005/06 are estimated at 305 GL, the third lowest since 1993/94;
- Cap figures for Queensland Murray-Darling Basin valleys have not yet been set and as a consequence no comparison between actual use and Cap targets is possible;
- Queensland, in developing Resource Operation Plans has agreed that the associated models will be submitted for technical audit and subsequent accreditation by the Murray-Darling Basin Commission;
- Resource Operations Plans for the Warrego, Paroo, Nebine and Moonie catchments were gazetted in January 2006;
- The Resource Operations Plan for the Border Rivers is progressing and will give effect to the Queensland and NSW Inter-governmental agreement. Queensland advises that the draft plan will be released for consultation in early 2007, and finalised by August 2007. Queensland is amending the Border Rivers Water Resource Plan to facilitate inter and intrastate trading of water entitlements;
- Following the establishment of the Lower Balonne Ministerial Water Resources Advisory Council and the Upper and the Middle Condamine ROP Advisory Group, Queensland advised the IAG that a draft Resource Operations Plan for the Condamine-Balonne is expected to be released for public comment in early March 2007 and finalised by the end of 2007;
- Queensland has committed to submit Cap proposals to the Murray-Darling Basin Commission within six months of finalisation of the Resource Operations Plans. The Cap proposals for the Warrego, Paroo, Nebine and Moonie were submitted in November 2006. These were audited by the IAG in February 2007 and recommended to the Commission;
There is also an expectation by the Murray-Darling Basin Ministerial Council that Queensland will place a proposal for Cap figures for each valley before Council before finalising the statutory process; and

A metering program will ensure reliable information on water use is available as the Resource Operation Plans are implemented.

**Australian Capital Territory**

- The ACT has reaffirmed its commitment to establishing a Cap, although no Cap presently exists for the ACT;
- Net diversions of 32 GL in 2005/06 are consistent with the average usage between 1989 and 2006 of 31 GL and are also less than a possible climate-adjusted annual Cap target of 36.8 GL. The ACT would have a cumulative credit of 62.8 GL if the Cap of 38 GL notionally used by the IAG had applied since July 1997; and
- The IAG believes the ACT should complete its consideration of the form and size of a Cap to apply to the ACT by early 2007 and finalise agreement on the actual Cap by October 2007.
1. Introduction

In November 1996, the Independent Audit Group (IAG) submitted its report Setting the Cap (the IAG Report) to the Murray-Darling Basin Ministerial Council (the “Council”). This report addressed a number of issues arising out of the Council’s decision to introduce an immediate moratorium on further increases in diversions of water from the rivers of the Murray-Darling Basin and cap the future level of diversions.

The Council in finalising Schedule F, agreed that the IAG should have a role in auditing the implementation of the Cap.

In March 2005, the Commission agreed to continue the role of the IAG in auditing Cap compliance until 2009.

In October 2005, the two person IAG comprising Dr Wally Cox and Paul Baxter was expanded by the Commission to include Denis Flett. This reflected the decision by Council to require the IAG to also undertake the audit of The Living Murray project and the need for succession planning. The TLM audit is a separate report The Living Murray – Implementation Audit 2005/06.

The Council has also asked the IAG to review the Queensland Water Resource Planning process and, in due course, the outcomes of the process. This process, which involves significant community participation in both Queensland and northern NSW, was due for completion about the middle of 1998 but has been delayed. It will be the foundation for determining the balance in Queensland between consumptive and in-stream use, and the Council has supported the auditing of both the process and outcomes.

Thus the Review of Cap Implementation 2005/06 by the IAG has been prepared in response to the Council’s request and is based upon information made available to the IAG by each of the States and the ACT. The report sets out the broad background to the review and the process used by the IAG in forming its views and final conclusions. It then comments on the current status of compliance with the Cap in each of the five jurisdictions involved. It should be noted that Cap targets for the ACT, Queensland and Border Rivers within New South Wales are still to be established.

The IAG team wishes to thank all States and the ACT for their cooperation in making both the data and officers available, and for the open and frank way in which the review was conducted. The IAG also wishes to acknowledge the assistance provided by the officers of the Murray-Darling Basin Commission (MDBC) in the preparation of this report. The findings however continue to be entirely those of the IAG.
2. Background

The Council at its June 1995 meeting decided to introduce a Cap on diversion of water from the Murray-Darling Basin. A Cap on the volume of diversions associated with the 1993/94 level of development was seen as an essential first step in establishing management systems to achieve healthy rivers and sustainable consumptive uses.

The two primary objectives driving the decisions to implement the Cap were:

1. to maintain and, where appropriate, improve existing flow regimes in the waterways of the Murray-Darling Basin to protect and enhance the riverine environment; and
2. to achieve sustainable consumptive use by developing and managing Basin water resources to meet ecological, commercial and social needs.

The adopted definition of the Cap on diversions, leaving aside equity issues, is:

*The Cap is the volume of water that would have been diverted under 1993/94 levels of development.*

- to protect water quality and preserve the health of the river system, the Cap should ensure there is no net growth in diversions from the Murray-Darling Basin;
- the level of development against which to test for growth in water diversions be equivalent to 1993/94 levels of development;
- under the Cap, the amount of water that States would be entitled to divert from regulated streams in any year would be quantified using analytical models that incorporate weather conditions and which take into account:
  - the water supply infrastructure in place in 1993/94;
  - the water allocation and system operating rules which applied in 1993/94;
  - the entitlements that were allocated and the extent of their utilisation at 1993/94 levels of development;
  - the underlying level of demand for water in 1993/94; and
  - the system operating efficiency in 1993/94; and

The Council also acknowledged that:

- for South Australia, Victoria, and New South Wales, Cap management will be in accordance with the agreed outcomes as specified by the Cap definition above;
- for the ACT, the Cap will be defined following a review by the IAG and negotiations with the ACT Government; and
- for Queensland, any final agreement for the targeted outcomes will need to await the completion of the Water Allocation and Management Planning (WAMP) (now called Water Resource Plans – WRP) process being undertaken by that State, the outcome of which will be subject to consideration by the Council.

For Queensland, the Council agreed that the WRP process should ensure that Queensland balances consumptive and in-stream use. The IAG has supported the WRP process noting that:

- it must accommodate in-stream use not only in Queensland but also in the Border Rivers under the control of the Border Rivers Commission and the rest of the Murray-Darling Basin;
- a management regime needs to be developed that includes pricing, property rights and measuring and reporting;
- the WRP be fully implemented, including assessment of downstream impacts in NSW;
- the Precautionary Principle be applied through the establishment of an allocation to be held in reserve to minimise the risk of over allocation for consumptive use; and
- the final independent audit of the WRP process is conducted, including modelling of impacts on downstream Basin flows.

After considering a number of equity issues, the Cap may be adjusted for certain additional developments, which occurred after 1993/94.

The Cap should restrain diversions, not development. With the Cap in place, new developments should be allowed, provided that the water for them is obtained by improving water use efficiency or by purchasing water from existing developments.

Because irrigation demand varies with seasonal conditions, the diversions permitted under the Cap will vary from year to year. The system used to manage diversions within the Cap will therefore need to be flexible.

Following the Inter-government Agreement to establish *The Living Murray* project, the IAG with an expanded membership was asked to undertake both audits. *The Living Murray* project will lead to modifications in setting and modifying Cap targets to reflect water saved and/or purchased for environmental use.
The 2004/05 Review of Cap Implementation identified that:

- At 7884 GL, diversion from rivers in the Murray-Darling Basin was the lowest in the period since 1983/84 reflecting drought conditions throughout most of the Basin;
- Caps were still to be established for valleys in Queensland, the Border Rivers in New South Wales and the ACT;
- Only three models had been accredited to date and proposed modified targets of July 2006 for Victoria and New South Wales (except for Border Rivers by June 2007) and December 2007 for Queensland;
- In South Australia, diversions in 2004/05 were heavily constrained as a result of restrictions and were within the annual Cap targets for Metropolitan Adelaide, Country Towns and All Other Purposes Cap valleys;
- In Victoria, diversions for the Murray/Kiewa/Ovens Valley, Goulburn/Broken/Loddon, Campaspe and Wimmera Mallee were all below annual climate and trade-adjusted Cap triggers;
- In New South Wales, diversions were 3666 GL compared to 4120 GL in 2003/04;
- The preliminary Schedule F accounting for the 1997/98 – 2004/05 period indicates that diversions in the combined Barwon-Darling/Lower Darling Valleys are cumulatively 154 GL above Cap, and above the combined trigger for Special Auditing of 62 GL. Therefore a Special Audit is required for this valley although the IAG notes that the combined Barwon-Darling/Lower Darling Valleys has already been declared to be in breach of the Cap and the NSW authorities, in acknowledging the breach, advise that they have no additional information beyond that already provided to the IAG that would be relevant to a further Special Audit at this time;
- Diversions have been below Cap levels for other valleys in NSW;
- Queensland diversions are estimated at 455 GL; and
- In the ACT, net diversions of 27.1 GL in 2004/05 are below the average usage between 1989 and 2001 of 31 GL. The ACT would have a cumulative credit of 58 GL if the Cap of 38 GL notionally used proposed by the IAG had applied since July 1997;
For the purposes of this 2005/06 audit of progress with the implementation of the Cap, the IAG has adopted a consultative approach, where relevant, designed to:

- clarify expected Cap outcomes where relevant for each State;
- gather available statistical information on actual levels of diversions in 2005/06 as a means of quantifying overall diversions and commenting on Cap compliance;
- identify progress made in implementing the proposed management rules for capping water diversions;
- highlight particular problems being encountered by the relevant jurisdictions as regards the finalisation or implementation of the management rules; and
- update the status of the Queensland Water Resource Plans and finalisation of Cap figures for the ACT, Queensland and the Border Rivers in New South Wales.

The IAG met with representatives of each of the States and the ACT during the period 23 to 26 October 2006. The format of each meeting was to compare water usage in 2005/06 with Cap targets, to discuss progress with the establishment of models and management frameworks to achieve targets and to discuss issues of possible concern.

For the southern Murray-Darling Basin States (New South Wales, Victoria, South Australia), the ACT and Commonwealth the IAG also discussed progress in implementing the Living Murray project. The results of these discussions are reported separately in The Living Murray – Implementation Audit 2005/06.

The IAG drafted its observations and conclusions on progress being made within each State and the ACT and then invited the States concerned and the ACT to make comments of a factual nature upon the IAG’s findings. These observations on factual points were then considered by the IAG prior to finalising the report.

While acknowledging the valuable contribution made by each of the States, the ACT and the members of the MDBC staff, the findings and conclusions presented in this report are entirely those of the IAG.
4. Audit of 2005/06 Cap Implementation

4.1 South Australia

4.1.1 The Cap

As a result of decisions by the Ministerial Council in December 1996 and March 2001 and the finalisation of Schedule F, the components of the South Australian Cap unadjusted for trade are:

- a five-year rolling non-tradeable allocation of 650 GL for metropolitan Adelaide;
- a tradeable allocation of 50 GL per year for Country Towns;
- an allocation of 103.5 GL per year for the lower Murray Swamps with the following components:
  - 9.3 GL per year for Highlands with unrestricted trade*;
  - 72 GL per year for swamp use with unrestricted trade; and
  - 22.2 GL per year non-tradeable environmental entitlement
- an average of 440.6 GL per year for All Other Purposes in South Australia which is fully tradeable.

* The 9.3 GL per year for Highlands accounted for under the Lower Murray Swamps is now accounted under the All Other Purposes Cap. This component was transferred as part of the Lower Murray Swamps rehabilitation.

4.1.2 2005/06 Usage

The extended drought continued to impact on water resource availability across the South Australian portion of the Basin.

South Australia received a flow of 2310 GL significantly below the long-term median flow of 4800 GL.

Initial allocations of 70% were increased to 100% in October 2005 for the entire water year.

Above average spring rain and low grape prices resulted in diversions being below allocations despite significant temporary interstate trading when full allocations were announced in October 2005.

South Australian diversions in 2005/06 were within the annual Cap targets for Metropolitan Adelaide, Country Towns and All Other Purposes designated valleys. Diversions for the Lower Murray Swamps were the same as their trade-adjusted target. All designated valleys remain in cumulative Cap credit (Table 1).

Table 1: South Australian Diversions for 2005/06 (GL)

<table>
<thead>
<tr>
<th>System</th>
<th>Original Cap Diversion</th>
<th>Climate Adjusted Annual Cap Target</th>
<th>Adjustment to Target due to permanent trade</th>
<th>Adjustment to Target due to temporary trade</th>
<th>Adjusted Cap Target for 2005/06</th>
<th>Diversion for last Five Years</th>
<th>2005/06 Cumulative since 1997/98</th>
<th>Schedule F Trigger</th>
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<tr>
<td>Metropolitan Adelaide</td>
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<td>Country Towns</td>
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<td>Reclaimed Swamps</td>
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</tr>
</tbody>
</table>

1 This is temporary transfer against a first use Metro Adelaide Licence held in All Other Purposes Cap valley
2 The diversion includes the volume of temporary transfer described in 1
4.1.3 **Administration of the Cap**

South Australia continues to be well placed to manage the Cap. Water diverted from the River Murray for urban use is reliably measured and licences have been issued to SA Water for an allocation of 50 GL per year for country urban water and a non-tradeable 650 GL over a rolling five-year period for Adelaide. Any growth in River Murray extractions as a result of growth in demand has, pending the development of models, been covered by the transfer of entitlement into a Metro Adelaide “First Use Licence” which is debited against All Other Purposes (Table 2).

The issue of Quality Assurance is being addressed. Licensing and diversion data has been audited, a Water Licensing Manual documents processes and a new software package has been developed (WILMA – Water Information and Licensing Management Application). It has been in use since 1 July 2004 and is being upgraded to handle interstate water trade.

A Cap model for calculating the climate-adjusted annual Cap target for SA’s All Other Purposes (commonly called Highland irrigation) has been developed. Following recommendation from the Independent Auditor of Cap models, this model was approved by the Murray-Darling Basin Commission in November 2004 as a Cap model under Schedule F, the second such model to achieve that distinction.

There was a further permanent trade from the swamps to Highlands. A total of 5.5 GL was permanently transferred to the All Other Purposes Cap, due to the continued rehabilitation of the Lower Murray Swamps. In addition, the 9.3 GL Highland component of the Lower Murray Swamps was previously transferred to the All Other Purposes Cap. Diversions from these areas are now recorded as All Other Purposes diversions. In addition there was 2 GL traded temporarily from the Lower Murray Swamps to All Other Purposes.

There was net permanent trade in 2005/06 of 2.6 GL into South Australia All Other Purposes from interstate. In total 22 GL has been permanently traded into South Australia since 1998 and this has increased the All Other Purposes Cap by 19.8 GL. In 2005/06 this increase was counterbalanced by a net temporary trade out of the State of 24.3 GL. The significant growth in net temporary interstate trade from 1.7 to 24.3 GL largely resulted from the late announcement of 100% allocation with growers unable to fully utilize their allocation.

For permanent interstate trade only, the South Australian Cap increases or decreases by 0.9 GL for every 1 GL traded into or out of the State. South Australia has indicated that it intends to revisit this issue but the Cap factor has been used in the 2005/06 assessment.

South Australia, through SA Water, transports water from the Murray to other Basins for irrigation, i.e. Barossa Valley and Clare Valley. The IAG supports the accounting of diversions and trades as specified in Schedule F and notes that South Australia debits this against the originating allocation.

In 2005/06, 16 GL was temporarily transferred to the Metro-Adelaide’s proposed “First Use Licence” Cap. Of this volume, 8 GL came from Country Towns and 8 GL from All Other Purposes. Water used under the “First Use Licence” has not been debited against the 650 GL five year rolling Cap for Metropolitan Adelaide. This is an interim measure until new Cap Management arrangement is agreed by the Ministerial Council.

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**Table 2: Metropolitan Adelaide Cap Compliance (GL)**

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<tr>
<td><strong>Gross Diversion</strong></td>
<td>82.5</td>
<td>164.7</td>
<td>82.1</td>
<td>71.6</td>
<td>73.9</td>
<td>474.7</td>
</tr>
<tr>
<td><strong>1st Use Licence allocation</strong></td>
<td>12.0</td>
<td>11.0</td>
<td>9.9</td>
<td>8.4</td>
<td>16.0</td>
<td>56.8</td>
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<tr>
<td><strong>Rolling Diversion Against 650 GL Cap</strong></td>
<td><strong>70.5</strong></td>
<td><strong>153.7</strong></td>
<td><strong>72.7</strong></td>
<td><strong>63.2</strong></td>
<td><strong>57.9</strong></td>
<td><strong>418.0</strong></td>
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<tr>
<td><strong>Five Year Cap</strong></td>
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<td><strong>650.0</strong></td>
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<tr>
<td><strong>Credit</strong></td>
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<td></td>
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<td></td>
<td><strong>232.0</strong></td>
</tr>
</tbody>
</table>
4.1.4 Monitoring and Reporting

The IAG was advised that a modified computer based system for licensing and monitoring of water use (WILMA) provides the basis for reporting water allocation and use.

Urban consumption (Metropolitan Adelaide and Country Towns) and irrigation consumption in the Highland, All Other Purposes, rehabilitated irrigation areas are reliably metered (97% metered). Complete rehabilitation was achieved in the Highland region during the 2004/05 water year. South Australia continues to make improvements to ensure that the standard of metering of direct diversions is maintained at satisfactory levels.

Metering diversions from the Lower Murray Swamps is currently underway as part of a comprehensive rehabilitation program in that region and is expected to be finalised by 1 July 2007.

4.1.5 Proposals to Refine Implementation in 2006/07

South Australia will continue to improve its capacity to manage to Cap targets. In particular it was proposed to finalise a water management and allocation system, including direct measurement of water supply, for the Lower Murray Swamps. This project has been delayed but the full metering of off-takes for the Lower Murray Swamps is anticipated to be completed by 1 July 2007.

Works to enable reuse of drainage water in the Lower Murray Swamps is expected to be completed by 1 July 2008.

As part of the review of Schedule F South Australia has proposed that the following changes be made:

- Amalgamate remaining Lower Murray Swamps Cap components with the All Other Purposes Cap while retaining the Environmental Land Management Allocation as a non-tradable component within the All Other Purposes Cap;
- Consider amalgamation of the Country Towns Cap component, within All Other Purposes; and
- Calculate the exchange rate for interstate trade based on the ratio of the combined long-term average Cap and the combined licensed allocation.

This is supported by the IAG as it has no impact on the Cap volume within South Australia and is administratively more convenient.

4.1.6 IAG Assessment

Consumption in South Australia in 2005/06 was constrained as a result of restrictions early in the season, significant below average river flows, and an oversupply of grapes. Diversions for Country Towns, Metropolitan Adelaide and All Other Purposes were below Cap. Diversions for the Lower Murray Swamps are not currently fully metered and assumed to equal the Cap.

Metropolitan Adelaide consumption over the last five years was 386.9 GL compared with the target of 650 GL. Compliance with this Cap has been further enhanced by the transfer over the last five years of 56.8 GL from All Other Purposes designated valleys and Country Towns under a proposed “First Use Licence”.

SA Water has again raised the issue of provision of additional water for Adelaide over and above the water it holds against licences in other areas which is transported through SA Water infrastructure.

The rolling target of 650 GL over a five-year period for Metropolitan Adelaide assumes a 99% reliability of water supply for Adelaide. Any growth in consumption arising from a growth in demand or reduced yield from the Mount Lofty Ranges catchments will reduce the reliability of supply unless additional water is purchased from other users and transferred as permanent Cap.

This issue was addressed in part in the IAG’s 2003/04 report with in-principle agreement that:

- temporary transfers would be recognised for use against Metropolitan Adelaide consumption;
- a separate licence is to be maintained for any water traded to the Adelaide system;
- first water used each water year to Metropolitan Adelaide should be accounted as use by the separate licence; and
- reporting should be in accordance with Clause 11 of Schedule F.

A formal submission was received from the Department of Water, Land and Biodiversity Conservation, in October 2004. It proposed the following principles:

- For areas supplied with water extracted under the Metropolitan Adelaide Cap, growth in consumer demand beyond that existing in the year 2000 will be provided for separately to the original cap of 650 GL over 5 years. This is in line with the IAG recommendations in the 1996 report “Setting The Cap” (recommendation 32, page xiv).
• Growth in demand from the River Murray will be assessed by reference to the total demand in the area supplied by the Swan Reach – Stockwell, Mannum – Adelaide and the Murray Bridge – Onkaparinga pipelines, taking account of changes in yield and access to resources for urban use from the Mount Lofty Ranges Catchments.

• The growth component will be accounted for under a separate “First Use Licence”. Water extracted for Adelaide will be assumed to be used firstly from this licence with the balance being accounted against the original Cap licence.

• The full volume of the allocation on the “First Use Licence” as at 30 June in any water year will be utilised to account for the growth component.

• Water can be traded in or out of the “growth” licence provided that the cumulative volume of allocation provided under this licence (measured at 30 June in each water year) equals or exceeds the growth requirement. South Australia will report on this annually as part of the cap reporting.

• The estimate of growth will be reviewed every five years, but where appropriate the review may take into account more than just the previous five years data.

The IAG responded to the South Australian submission and this in turn has resulted in South Australia providing advice on possible methods for testing growth in demand and diversions for Metropolitan Adelaide.

South Australia submitted a report MAWSS Licence Investigation – Stage 1 – Scoping Study.

The report reviewed four different methods for assessing growth in River Murray extractions. The IAG currently assesses rolling 5-year diversion against the Cap target. This does not provide confidence that there has been no growth since the 2000 base year and a robust model is required to test predicted diversions against actual diversions on an annual basis.

The report author reviewed four options:

• Continuation of the interim arrangements whereby temporary transfers into a “First Use License” are subtracted from the diversions accounted against the five-year rolling Cap of 650 GL;

• Simple climate adjusted extraction modelling;

• Demand as a surrogate measure for extraction; and

• Complex climate-adjusted assessment of demand, inflow and impacts of system operating rules.

The IAG support the last option in that it builds on existing models with the addition of one model to determine climate-adjusted catchment inflows. This would provide the same level of sophistication and limitations as many of the other valley models.

In view of the fact that South Australia has applied the precautionary principle in providing a “First Use License” to accommodate possible growth the IAG is supportive of an accredited model being finalised by 30 June 2009.

South Australia remains best placed of all the States to quantify the Cap and reliably report against it.

Reliable consumption measurement is in place for both SA Water and the rehabilitated Highland irrigation areas with improvements being implemented for the Lower Murray Swamps.

The IAG again commends South Australia for the work that has been done in implementing the Cap and putting in place the necessary administrative framework.

4.1.7 Conclusions/Recommendations

• Diversions in 2005/06 were constrained as a result of restrictions early in the season and were within the annual Cap targets for Metropolitan Adelaide, Country Towns and All Other Purposes Cap valleys.

• Diversions for the Lower Murray Swamps Cap valley are currently not fully metered and are assumed to equal the Cap.

• South Australia has a reliable measuring system, which continues to improve, for urban and irrigation use.

• The South Australian All Other Purposes Cap model was approved by the Commission in November 2004, the second such model to achieve that distinction.

• The IAG recommends that South Australia develop a model of diversions from the River Murray for Metro-Adelaide. This model should simulate urban demand, inflows from the local Adelaide Hills Catchments and the operation of the supply system. It should be used to generate annual Cap targets and should be accredited by June 2009.

• In the interim South Australia continue to provide a sufficient allocation to the “First Use License” to cover estimates of growth.
As part of the review of Schedule F South Australia has proposed that the following changes be made:

- Amalgamate remaining Lower Murray Swamps Cap components with the All Other Purposes Cap while retaining the Environmental Land Management Allocation as a non-tradable component within the All Other Purposes Cap;
- Consider amalgamation of the Country Towns Cap component linked to the Swamp-lands within All Other Purposes;
- Calculate the exchange rate for interstate trade based on ratio of combined Cap and combined licensed allocation on an annual basis.

This is supported by the IAG as it has no impact on the Cap volume within South Australia and is administratively more convenient.
4.2 Victoria

4.2.1 Status of Models used to Calculate Annual Cap Targets

Victoria is using computer simulation models, calibrated to 1993/94 level of development, to calculate annual Cap targets for the major regulated systems. Regression models are being used for the smaller systems.

There have been no changes in the model used to calculate Cap targets for the Goulburn/Broken/Loddon and Campaspe valleys since the 2004/05 Cap audit. Documentation of model assumptions, final model and calibration results have been submitted to the model auditor for accreditation of the model and accreditation is expected to be achieved by 31 December 2006. This interim model has been used to calculate the 2005/06 Cap targets and the cumulative credits since 1997.

The model used to calculate the Murray component of the Murray/Kiewa/Ovens valley Cap target is being re-calibrated by the MDB to reflect revised estimates of historical diversions. It is expected to be accredited by 30 June 2007. An interim version of this model has been used to calculate the 2005/06 Murray component of the Cap target. Regression relationships with rainfall and temperature have been developed by the MDB to calculate the Kiewa and Ovens components of the Cap targets. The three models were used to calculate the 2005/06 Cap target and the cumulative credits since 1997.

A model of the Wimmera-Mallee system has been developed as part of the Bulk Entitlement conversion process. Provision to model the various stages of the Northern Mallee Pipeline Project has also been included. As these savings have significantly reduced diversions and allowed increased environmental entitlements to be specified in the Bulk Entitlement, Grampians Wimmera-Mallee Water have proposed that Cap compliance in the Wimmera-Mallee Valley be based on compliance with Bulk Entitlements.

As a result of revised estimates of model input data for May and June 2006, the 2005/06 Cap targets for Goulburn/Broken/Loddon and Campaspe valleys have changed slightly compared with figures reported in last year’s report. These changes are insignificant (less than 0.1% of the long-term Cap). Similarly due to re-calibration of Murray model, the Cap targets for Murray/Kiewa/Ovens valley back to 1997/98 are slightly different from figures reported in previous years’ reports (less than 1% of the long-term Cap).

Victoria remains committed to the ongoing development and improvement of Cap models for calculating annual Cap targets.

4.2.2 2005/06 Diversions

Overview

Irrigation areas supplied from the Goulburn, Loddon and Campaspe systems again experienced low to very low water availability during 2005/06 due to a combination of low carryover storage volumes from 2004/05 and below average inflows during 2005/06. In comparison, water availability on the Murray system was relatively high.

There was no water available for irrigation at the start of July 2005 for the Goulburn, Loddon and Campaspe systems. Opening allocations for the Murray and Broken systems were 82% and 66% of water right/licensed volume respectively. On the Bullarook Creek system, the opening allocation was 100% of licensed volume for customers supplied from Newlyn Reservoir and 48% of licensed volume for customers between Hepburn’s Lagoon to the confluence.

The Minister for Water, as was the case for the previous two years, qualified rights to water in a number of areas early in the year to enable essential supplies to continue until conditions improved.

As resources improved, seasonal allocations progressively increased on all systems. On the Broken system, the maximum possible allocation of 170% of licensed volume was reached at the start of spring. The allocation on the Goulburn and Loddon systems reached 100% of water right/licensed volume in late spring and late summer respectively. No sales allocation was available in 2005/06 for these systems. The allocation reached only 31% of water right/licensed volume for the Campaspe system (the lowest final allocation on record).

By mid-April 2006 the Murray allocation had reached 144% of Water Right for gravity irrigation areas.

Rainfalls during the spring months were patchy, varying from well below average to well above average in some months and across areas. Summer also had high rainfall variability. For those storages where rainfall was well below average little runoff occurred. Monthly rainfalls in autumn with a few exceptions were well below average.
Major storages on the Goulburn, Campaspe, Loddon and Murray systems all failed to fill to capacity by a significant margin. Inflows to these storages were well below average for the year, despite annual rainfall being close to average. In some cases, notably storages on the Campaspe and Loddon systems, inflows were exceptionally low. The annual inflow to Lake Eppalock on the Campaspe system was only 2% of average. On the Loddon system, the annual inflows to Cairn Curran and Tallaroop storages were 11% and 8% of average respectively. Eildon, Hume and Dartmouth storages had annual inflows 59%, 85% and 101% of average respectively.

Only storages on the Buffalo, King, and Broken systems filled to capacity during the spring. Waranga Basin and Newlyn Reservoir reached 96% and 99% of capacity respectively.

At the end of the irrigation season, the major irrigation storages had been drawn down to very low levels. Lake Eildon was drawn down to 21% of capacity. After reaching 12% of capacity in mid-November 2005, Lake Eppalock on the Campaspe system was holding only 5% of capacity by early June 2006. Cairn Curran and Tallaroop storages on the Loddon system were drawn down to near record low levels. Dartmouth reservoir was holding 65% of capacity by the end of June 2006. Lake Hume had been drawn down to 13% full in early May, but recovered to 21% by the end of June 2006.

While diversions from the Murray/Kiewa/Ovens and Campaspe valleys were each below their Cap targets for 2005/06, diversions from the Goulburn/Broken/Loddon valley were above its Cap target for 2005/06. Although the Cap targets are not yet available for the Wimmera-Mallee valley, significant water savings have been achieved through the Northern Mallee Pipeline Project and some of these savings have been allocated to the environment. Environmental releases from these new entitlements were made in 2005/06 ensuring that diversions in the Wimmera-Mallee valley remain below 1993/94 levels.

All four Victorian valleys have cumulative Cap credits up to 30 June 2006. A comparison of cumulative diversions with Cap targets since 1997/98 is shown in Table 3. These values are preliminary, as trade data needs to be reconciled with other valleys and final accuracy checking is yet to be undertaken.

It should be noted that, due to model recalibration of the Murray model, Cap targets (and therefore Cap credits) back to 1997/98 for the Murray/Kiewa/Ovens valley have changed slightly compared with figures reported in previous years’ reports.

### Table 3: 2005/06 Diversions (preliminary values) compared with Schedule F Targets (GL/year)

<table>
<thead>
<tr>
<th>Valley</th>
<th>Long-term modelled Cap</th>
<th>2005/06 Cap Target</th>
<th>Net Adjustment to Cap because of trade</th>
<th>Cumulative* since 1 July 1997</th>
<th>20% Schedule F Trigger</th>
</tr>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Goulburn/Broken</td>
<td>2034</td>
<td>1579</td>
<td>-40</td>
<td>1548</td>
<td>-10</td>
</tr>
<tr>
<td>Campaspe</td>
<td>1697</td>
<td>1610</td>
<td>15</td>
<td>1563</td>
<td>62</td>
</tr>
<tr>
<td>Wimmera-Mallee</td>
<td>123</td>
<td>59</td>
<td>-</td>
<td>36</td>
<td>23</td>
</tr>
<tr>
<td>Interim Mokoan allowance</td>
<td>162</td>
<td>N/A</td>
<td>-</td>
<td>75</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* includes corrections due to model revisions – 1997 to 2005
Goulburn/Broken/Loddon

Resource availability

While rainfall at Eildon was 95% of average for 2005/06, the inflow to the storage was only 59% of average. The cumulative inflow to Lake Eildon since October 1996 to the end of June 2006 has been the lowest on record for this 116 month sequence. After peaking at 49% of capacity in mid-November 2005, Lake Eildon was drawn down to 21% of capacity by early May 2006.

The unregulated inflow between Eildon and Goulburn Weir for 2005/06 was only 41% of average. The diversion efficiency at Goulburn Weir for the year was 95%, almost the same as for the previous year. Unregulated spills totalling six days occurred in early September and late October.

River Murray Water called on Inter Valley Trade (IVT) water which was made available over the period from the start of January 2006 to the end of March 2006. Releases at Goulburn Weir were as high as 2.5 GL/day during this period. Most of the IVT water was transferred to the River Murray via the Goulburn River but small volumes were transferred via the lower Broken Creek and the lower Campaspe River to provide environmental benefits for these streams as was the case in 2004/05.

The initial 2005/06 allocation on the Goulburn system was zero but it increased to 21% by 15 August and then to 100% of water right by 1 November. No “sales” allocation was announced for the eighth consecutive year.

Despite inflows to Lake Nillahcootie being only 65% of the annual average, the storage filled in late winter. Lake Mokoan was used to harvest unregulated flows downstream of Lake Nillahcootie within the filling limits imposed in recent years. In mid-November 2005, Lake Mokoan reached 54% of capacity and was drawn down to 24% of capacity by early June 2006. Releases from Lake Mokoan continued for most of the year but were suspended from mid-January 2006 to late-February 2006 due to high blue-green algae cell counts within the storage. The total release from Lake Mokoan was 66.22 GL, of which 24.55 GL was used to supplement supplies to diverters on the lower Goulburn River.

Very low carryover volumes combined with inflows well below average resulted in the Cairn Curran and Tullaroop reservoirs both reaching only 22.0% of capacities in late spring. Carryover volumes in each of these two storages at the end of year were very close to the lowest on record.

The poor Loddon resource position resulted in no Loddon supplement being available to the Boort Irrigation Area, which had to rely entirely on Goulburn resources. The opening Loddon allocation was zero but it increased to 100% of licensed volume by mid-February 2006, with no further increase. The 2005/06 final allocation on Loddon system shared with 2001/02 as being the equal third lowest on record.

Cap compliance

Diversion from the Goulburn/Broken/Loddon valley was 1548 GL, which is 10 GL (less than 1%) above the Cap target of 1538 GL (with preliminary adjustment for trade). Diversions were 24% below the long-term Cap of 2034 GL/year. The cumulative Cap credit since July 1997 for the Goulburn/Broken/Loddon valley is 95 GL. These results are summarised in Table 3.

The above calculations do not include the 22 GL/year interim allowance for the full utilisation of Lake Mokoan.

Murray/Kiewa/Ovens

Resource availability

Unregulated inflows to Dartmouth and Hume reservoirs were 101% and 85% of the annual average. Lake Dartmouth reached 65% of capacity in mid-January 2006 while Lake Hume filled to 92% in mid-November 2005. The good recovery of Lake Hume meant that no irrigation water needed to be transferred from Lake Dartmouth. During the irrigation season there were relatively few rain interruptions requiring a rapid reduction in releases from Lake Hume. A total of 513 GL of regulated releases were debited against the Murray Environmental Water Account. This water was utilised to flood the Barmah-Millewa Forest during the spring.

Lake Victoria was effectively full by early December 2005 and again in May 2006; however inflows to the Menindee Lakes were very low. As a result, the total volume held in the Menindee Lakes did not rise above the 640 GL storage volume required to provide a regulated supplement to the River Murray. This is the fourth year in a row that there has been no supplement to the Murray from the Menindee Lakes.

The opening allocation on the Murray system was 82% of water right, which increased to 144% of water right by mid-April 2006. The final allocation was the highest since 2001/02.
Cap compliance
Diversion from the Murray/Kiewa/Ovens valley was 1563 GL, which is 62 GL (4%) below the Cap target of 1624 GL (with preliminary adjustment for trade). The diversion was also 8% below the long-term Cap of 1697 GL/year. The cumulative Cap credit since July 1997 to June 2006 for the Murray/Kiewa/Ovens valley is 929 GL (Table 3).

Campaspe

Resource availability
Inflows to Lake Eppalock were only 2% of average and were much lower than in 2004/05. The storage peaked at only 12% of capacity in mid-November 2005. By the end of June 2006, it had reduced to 5% of capacity, just above the lowest on record (4.6% of capacity in June 2004).

As in 2004/05, the Campaspe system was highly regulated during 2005/06. Campaspe Weir was operated below full supply level to minimise the risk of spills.

Early in the year due to the extremely poor resource position, the Minister for Water qualified rights to provide a limited supply for high importance uses.

In mid-September 2005, an allocation of 2% of water right/licensed volume was announced. The allocation increased slowly to reach only 31% of water right/licensed volume at the start of December 2005. This final allocation was by far the lowest on record, the previous lowest final allocation being 39% in the previous year.

From early summer, the minimum flow requirement downstream of the Campaspe Siphon, which is tied to natural flow, was effectively zero. Goulburn-Murray Water transferred up to 15 ML/day from the Goulburn Inter Valley Trade (IVT) account to the River Murray via the Waranga Western Channel and the lower Campaspe River to maintain environmental values in the lower Campaspe River. This injection of Goulburn IVT water continued until mid-May 2006 and resumed again in late June 2006.

Cap compliance
Diversion from the Campaspe valley was 36 GL, which is 22 GL (38%) below the Cap target of 58 GL (no adjustment for trade is necessary). Diversions were 71% below the long-term Cap of 123 GL/year. The cumulative Cap credit since July 1997 for the Campaspe valley is 99 GL (Table 3).

Wimmera-Mallee

Resource availability
The 2005/06 season was again dominated by below average inflows and the need to restrict supplies. This represented the ninth year of below average inflows to the system. The storages remained low with six remaining empty and the others at very low levels. The maximum storage volume for the system was 10% in November 2005 and the minimum was 6% in mid June 2006.

This period also saw the second year of operation of the Wimmera–Glenelg Bulk Entitlement. The Bulk Entitlement operates over a water allocation year of November to October with the first allocation year being November 2004–October 2005.

The total Bulk Entitlement allocation at the start of November 2005 was 48.30 GL. An available water volume of 208.45 GL is required before all entitlements defined within the Bulk Entitlement are met in full. Over the year the allocation rose due to above minimum inflows but was only 84.17 GL at the start of August 2006 and at this level there was only sufficient reserve for the 2006/07 water allocation year to supply the towns supplied direct off head-works for the 2006/07 summer period.

The level of restriction applied in 2004/05 was one dam per 400 Ha in the Waranga supplied winter-dam-fill area (about 35% of dams) and one dam per 400 Ha in the summer-dam-fill area (about 30% of dams). The remainder of the channel supplied Domestic & Stock customers were not supplied with any dam fills, but were given access to an emergency carting program.

Customers holding specific “supply by agreement (SBA)” licences were restricted to 6% of their licensed volume. To assist SBA customers, it was determined that water allocated for future development would be best distributed amongst SBA customers who are on channels running to town supplies and direct off head-works. This water was allocated on the basis of estimations of minimum water required to maintain viability of these businesses during the year ahead.

There was no supply to irrigation during this period.

The environment received an allocation of 4.03 GL under the Bulk Entitlement. This was combined with the 50 ML of compensation flow for the Glenelg River downstream of Rocklands and 4.44 GL of entitlement carried over from the
2004/05 BE year to provide a total volume of 8.51 GL. This volume was released in accordance with the annual watering plan prepared by the Wimmera and Glenelg Hopkins Catchment Management Authorities with water supplies to the Glenelg, Wimmera, and McKenzie rivers.

Water use data to the start of October 2006 indicates that all Bulk Entitlement holders will use less than their total allocation with the exception of Wannon Water. Some discrepancies have been identified in the metering of water to the BE holders and are being investigated.

**Cap compliance**

Diversion from the Wimmera-Mallee valley was 75 GL in 2005/06. An annual Cap target has not been calculated for this valley as, although a model has been built for the implementation of the Bulk Entitlement, refinements are required for it to be used for Cap compliance purposes. The interim estimate of the long-term Cap is 162 GL/year.

Diversions for 2005/06 were 46% of this long-term Cap. Usage has remained within Cap, as there have been significant water savings since 1993 through construction of the Northern Mallee Pipeline.

**4.2.3 Administration of the Cap**

Between 1995 and 1997 Victoria introduced and refined the following changes to water management in response to the Murray Darling Basin Ministerial Council decision to Cap water use:

- restrictions on temporary and permanent water trading,
- reductions on allocations for a given resource, and
- limits on the issuing of new entitlements.

Monitoring of the effectiveness of the water management policies is undertaken on an ongoing basis. No new capping policies were introduced in 2005/06 and none are proposed for 2006/07 as these measures have continued to be effective. There is no evidence of growth in diversions in any of the Victorian valleys.

Victoria remains committed to the Cap through the continued establishment and implementation of Bulk Entitlements and Streamflow Management Plans and the licensing of irrigation farm dams.

**Bulk Entitlements**

Victoria continued to implement the Cap on regulated systems by establishing Bulk Entitlements in accordance with the *Water Act 1989*.

Bulk entitlements have been established for; Goulburn Basin, Murray (Victorian system), Campaspe Basin, Kiewa River, Broken Basin, Owens River, Wimmera-Mallee and Loddon Basin.

The Bulk entitlement for Birch creek is progressing and expected to be completed in April 2007.

**Snowy Environmental Reserve –** An environmental entitlement for the Snowy Environmental Reserve was granted in June 2004. To date 7 GL of high reliability savings has been transferred from the Murray and 14.41 GL from the Goulburn. The volume of environmental entitlements in these Bulk Entitlements will be increased as other water savings projects are undertaken.

**Streamflow Management Plans (SFMPs)**

The Government aims to provide ecologically sustainable Environmental Water Reserves for all unregulated rivers. In most cases, this will be achieved through better management of existing diversions and the introduction of sustainable diversion limits for the winter months. Some of the enhanced management policies for unregulated rivers include:

- recognising the ecological stress caused by summer diversions and banning the issuing of new licences which allow diversion of water during the period November to June inclusive. This extends the existing policy that currently applies to irrigation and commercial use to new domestic and stock licences and also extends the period of applicability;
- only issuing new licences for the July to October period where there is spare water under the sustainable diversion limit for the catchment. In northern Victoria, water for new development will continue to be purchased from existing users.
- introducing statewide management rules for all water use. This will protect the Environmental Water Reserve and prevent further environmental degradation.

However, a number of unregulated rivers are stressed because too much water is typically taken during the low flow summer period.
In stressed unregulated rivers one of the key actions required is changing the pattern of diversions, moving diverters from taking water in summer to diverting water in winter when in most instances this will cause less ecological damage.

The White Paper *Securing Our Water Our Future* set the strategic direction for where Stream Flow Management Plans (SFMPs) are required to improve environmental flows through the reduction of summer low flow stress. SFMPs set out clear objectives and actions for achieving sustainable Environmental Water Reserves. In many cases, this will be through cost-sharing with farmers on off-set measures such as building off-stream winter-fill dams. Plans will also clarify levels of security for water users and include rules for rostering, trading and the granting of any new licences. Each SFMP is developed on behalf of the Minister for Water by a consultative committee consisting of water users, community, environmental and government agency representatives and in accordance with *Water Act 1989* provisions.

The *Our Water Our Future 2004* plan identified the following priority unregulated rivers in northern Victoria:

- Upper Ovens River;
- Kiewa River;
- Yea River;
- King Parrot Creek;
- Seven Creeks; and
- Upper Wimmera River

Supporting technical studies required for the development of each of the above SFMPs, such as environmental flow studies and hydrological models, have been completed or are in development in preparation for future use by consultative committees which will be responsible for the development of the SFMPs.

**Irrigation Farm Dams**

Victoria not only manages water in waterways, but also licenses the use of water for irrigation and commercial purposes in catchment dams under the *Water Act 1989*, as amended by the *Water (Irrigation Farm Dams) Act 2002*. All existing dams used for irrigation or commercial purposes were required to be either licensed or registered during the period 1 July 2002 to 30 June 2003. All new irrigation and commercial use of water must be licensed, whether the proposed dam is located on a waterway or not. Changes to the legislation have also led to the establishment of Permissible Consumptive Volumes for catchments across the state and the establishment of exchange rates to ensure that the MDBC Cap is preserved when licences are traded. A legislative backing has also been provided for locally developed Stream Flow Management Plans.

Over 6000 catchment dams in the MDBC basin south of the Murray River have been or are in the process of being licensed. New licence applications for catchment dams are subject to the MDBC Cap and new developers are required to purchase an existing entitlement before approval is provided.

**Off-Quota Policy**

In mid-2003 the policy of announcing off-quota allocations when unregulated flows occur downstream of storages was discontinued and replaced, on an interim basis, with a new “advance arrangement” which only allowed access to unregulated flow in years of severe water shortage. These interim arrangements no longer apply.

This will result in a significant reduction in usage during periods of “declared surplus” in the future.

**4.2.4 Proposals to Refine Implementation in 2006/2007**

Proposed refinements to the management of the Cap in 2006/07 include:

- Model for the Goulburn/Broken/Loddon and Campaspe valleys expected to gain Commission approval by December 2006;
- Re-calibration of the Murray Cap model is almost complete and it is expected to go to the independent auditor by December 2006 for accreditation by June 2007; and
- A Cap compliance methodology for the reduced Wimmera-Mallee Cap is progressing slowly due to the extreme drought but a working model is expected to be available by October 2007 which will form the basis of a submission to the MDBC for an amendment to Schedule F.

In June 2004, the Victorian Government released a White Paper *Securing Our Water Future Together*, which outlines a comprehensive, integrated approach to managing Victoria’s water resources over the next 50 years. The initiatives in the White Paper reinforce the Victoria’s commitment to working with the MDBMC and the other Basin states to implement the MDB Cap and the *Living Murray* initiative.
Adjustments to the Cap will be required to account for water saved through water-savings projects and the delivery of environmental water as part of White Paper initiatives, which include:

- decommissioning Lake Mokoan; and
- the conversion of ‘sales’ water into a separate, legally recognised, independently-tradeable entitlement and the allocation of 20% of this new entitlement to the environment.

Cap adjustments will be made through changes to the Cap models or by adjusting the modelled Cap targets where appropriate.

### 4.2.5 IAG Assessment

Diversions in 2005/06 for all valleys (the Murray/Kiewa/Ovens Valley, Campaspe and Wimmera-Mallee) except the Goulburn/Broken/Loddon valley were below annual climate and trade-adjusted Cap targets.

All valleys have significant accumulated credits since 1997.

Progress continues on developing, improving and accrediting models used to predict climate-adjusted diversion Caps. The models for the Goulburn/Broken/Loddon and Campaspe valleys are expected to be accredited by December 2006. Re-calibration and auditing of the accredited Murray Cap model is expected to be completed by July 2007.

The establishment of Bulk Entitlements is completed.

Further refinements to the Cap are expected to arise as a result of the Living Murray initiative and the IAG will report on these separately.

Victoria continues to operate and further develop a strong legal and policy framework and supporting processes to manage the Cap and the requirements of Schedule F.

### 4.2.6 Conclusions/Recommendations

- Diversions for the Murray/Kiewa/Ovens Valley, and Campaspe in 2005/06 were below annual climate and trade-adjusted Cap targets;
- Cumulative diversions since 1997 for all valleys are in credit;
- Accreditation of the models for the Goulburn/Broken/Loddon and Campaspe Valleys is now expected by December 2006;
- Bulk water entitlements have been finalised for major valleys;
- Significant changes for Cap management and implementation will continue as a result of changes agreed to as part of the National Water Initiative, the Living Murray project and other specific Victorian Government projects particularly in relation to provision for water for the environment resulting from water-saving projects and other initiatives.
4.3 New South Wales

4.3.1 The Cap

Assessment of Cap performance in NSW has been conducted on a valley-by-valley basis according to the requirements of Schedule F to the Murray-Darling Basin Agreement. Cumulative performance from 1997/98 relative to the Cap is assessed for all NSW valleys, which now have a common water year from July to June.

On 1 July 2004, Water Sharing Plans commenced in most of the major regulated valleys in NSW, including the NSW Murray and Lower Darling, Murrumbidgee, Lachlan, Macquarie, Namoi, and Gwydir valleys. These Plans are considered by NSW as representing a major milestone in the NSW water reform process, and a significant change in the nature of water licences. Each of the Plans sets in place a long-term diversion limit below Cap, and provides for a range of environmentally-focused water management rules.

The Department of Natural Resources (DNR) has developed a suite of Integrated Quantity/Quality Models (IQQMs) for each of its major regulated valleys and the Barwon-Darling. For the Murray and Lower Darling, the MDBC’s Murray Simulation Model (MSM) is used for Cap auditing and is currently undergoing recalibration.

The status of the various models used for annual Cap auditing in NSW is provided in Table 4.

4.3.2 2005/06 Usage

The IQQM models in interim and final form have primarily been used to determine whether individual valley diversions have exceeded the Cap. The difference between the annual diversion target or climate-adjusted Cap and the actual recorded diversion for each valley is recorded as either a credit or a debit for the year. This is then added to the previous year’s debit or credit, which is then compared to the Schedule F exceedence trigger. This exceedence trigger is 20% of the long-term average diversion generated from the analytical model.

Table 5 provides a summary of NSW diversions by river valleys. This table identifies those valleys where diversions are in credit or in debit against annual Cap values and whether or not those in debit have exceeded the Schedule F trigger. Some amendments have been made to the credit and Cap estimates from previous years based on refinements and recalculations of the models.

Table 5 also provides additional information provided by DNR on differences in storage between that which is observed and that which is modelled.

The on-going drought conditions have resulted in continued low inflows to the major storages, and continued record low allocations in some valleys. At the close of the 2005/06 water year, many major storages in the NSW portion of the Basin, particularly in southern and central valleys, were again at low levels.

### Table 4: NSW Cap Auditing Models Status

<table>
<thead>
<tr>
<th>Valley</th>
<th>Auditing Tool</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murray/Lower Darling</td>
<td>Murray Simulation Model (Interim)</td>
<td>Undergoing recalibration</td>
</tr>
<tr>
<td>Murrumbidgee</td>
<td>IQQM (Interim)</td>
<td>Preliminary results available</td>
</tr>
<tr>
<td>Lachlan</td>
<td>IQQM (Final)</td>
<td>Approved for use under Schedule F</td>
</tr>
<tr>
<td>Macquarie</td>
<td>IQQM (Final)</td>
<td>Currently undergoing accreditation</td>
</tr>
<tr>
<td>Peel</td>
<td>IQQM (Final)</td>
<td>Currently undergoing accreditation</td>
</tr>
<tr>
<td>Namoi</td>
<td>IQQM (Final)</td>
<td>Approved for use under Schedule F</td>
</tr>
<tr>
<td>Gwydir</td>
<td>IQQM (Final)</td>
<td>Currently undergoing accreditation</td>
</tr>
<tr>
<td>Border Rivers</td>
<td>IQQM (Interim)</td>
<td>Definition of Cap not complete</td>
</tr>
<tr>
<td>Barwon-Darling</td>
<td>IQQM (Final)</td>
<td>Preliminary results available</td>
</tr>
</tbody>
</table>
Drought conditions eased somewhat over the majority of NSW during 2005/06, with the majority of the NSW parts of the Murray-Darling Basin receiving close to average rainfall. However, the long period of general below-average rainfall since 2001 means that runoff into storages remained well below average. The last four months of the year also saw a return to very dry conditions and, at the close of the 2005/06 water year, many major storages in the NSW portion of the Basin were again at low levels.

Inflows to storages within the NSW portion of the Basin have been extremely low over the last 4–5 years, with some storages recording new record minimum inflow volumes over various periods up to four years. Up to 30 June 2006, these include:

- Menindee Inflows – new 12 month, 2 year and 3 year minimum inflow volume.
- Burrunjuck Dam (Murrumbidgee) – new 12 month minimum inflow volume during 2002/03.
- New 3 and/or 4 year minimum inflow volumes for (variously) Blowering (natural), Burrunjuck, Menindee, Wyangala and Windamere dams.

In last year’s IAG report, NSW noted the differences between the storage volumes estimated in the models used to determine annual Cap targets (see Table 5) and observed storage levels. It noted that these differences qualify the estimates of Cap Credits. A valley with a Cap Debit, with an observed storage greater than that estimated by the model might be considered to be more likely to incur Cap credits.

### Table 5: NSW Cap Performance for 2005/06 (GL)

<table>
<thead>
<tr>
<th>System</th>
<th>Long-term Diversion Cap</th>
<th>2005/06 Cap Target</th>
<th>Net trade to valley</th>
<th>2005/06 diversion</th>
<th>Cap credits (Target less diversion)</th>
<th>Cumulative since 1/7/97</th>
<th>20% Schedule Trigger</th>
<th>Storage Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barwon-Darling</td>
<td>173</td>
<td>179</td>
<td>0</td>
<td>157</td>
<td>22</td>
<td>-277</td>
<td>-35</td>
<td>Yes</td>
</tr>
<tr>
<td>Lower Darling</td>
<td>137</td>
<td>14</td>
<td>0</td>
<td>41</td>
<td>-28</td>
<td>134</td>
<td>-27</td>
<td>No</td>
</tr>
<tr>
<td>Combined Barwon-Upper Darling and Lower Darling</td>
<td>310</td>
<td>193</td>
<td>0</td>
<td>1999</td>
<td>-6</td>
<td>-143</td>
<td>-62</td>
<td>Yes</td>
</tr>
<tr>
<td>Intersecting Streams</td>
<td>N/A</td>
<td>N/A</td>
<td>0</td>
<td>3</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Border Rivers</td>
<td>N/A</td>
<td>N/A</td>
<td>-12</td>
<td>151</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Gwydir</td>
<td>354</td>
<td>368</td>
<td>0</td>
<td>231</td>
<td>137</td>
<td>335</td>
<td>-70</td>
<td>No</td>
</tr>
<tr>
<td>Namoi/Peel</td>
<td>342</td>
<td>285</td>
<td>0</td>
<td>238</td>
<td>47</td>
<td>56</td>
<td>-68</td>
<td>No</td>
</tr>
<tr>
<td>Macquarie/Castlereagh/Bogan</td>
<td>459</td>
<td>414</td>
<td>0</td>
<td>210</td>
<td>204</td>
<td>789</td>
<td>-92</td>
<td>No</td>
</tr>
<tr>
<td>Lachlan</td>
<td>334</td>
<td>167</td>
<td>0</td>
<td>125</td>
<td>42</td>
<td>48</td>
<td>-64</td>
<td>No</td>
</tr>
<tr>
<td>Murrumbidgee</td>
<td>2341</td>
<td>2457</td>
<td>-5</td>
<td>2199</td>
<td>253</td>
<td>920</td>
<td>-468</td>
<td>No</td>
</tr>
<tr>
<td>NSW Murray</td>
<td>1924</td>
<td>1816</td>
<td>-3</td>
<td>1631</td>
<td>182</td>
<td>832</td>
<td>-385</td>
<td>No</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>20</strong></td>
<td><strong>4987</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) A positive storage difference represents a potential Cap credit in future water years.
debits in future years. While not part of the Schedule F reporting process, NSW has drawn some observations from an analysis which adjusts the Cap credits (debits) by valley for this apparent difference between simulated and observed storage estimates. This has been used as a reality ‘check’ on the conclusions that NSW has been drawing from its own long-term modelling of Cap performances. This analysis, while only meant to be indicative, is argued by NSW as supporting their view that their water plans for all valleys with exception of combined Barwon/Upper Darling and Lower Darling, are producing sustainable below-Cap performances.

**Murray Valley**

**Resource availability**

There was some respite from low levels of water availability during the 2005/06 water year, although drought conditions returned in March 2006, resulting in storage levels reaching new lows at the end of the year. Improved water availability was, in part, through additional releases of 99 GL from the Snowy scheme, which were made available from future inflows to irrigators this year. Irrigators will be required to repay the water borrowed when water availability (announced + carryover) exceeds 50% in future years.

The NSW Murray and Lower Darling Water Sharing Plan commenced on 1 July 2004, and included a limit on diversions that is initially estimated to be 4% below Cap.

**Cap compliance**

The Cap for the regulated sections of the Murray Valley is currently audited on a provisional basis using the Murray Simulation Model (MSM). Recalibration of MSM to better represent 1993/94 conditions commenced during 2002/03, and was expected to be completed by mid-2006, but is now expected to be completed in early 2007. The results reported have been produced from the pre-recalibration model currently in use. Cap modelling uses inflows from the Snowy Scheme which exclude all Snowy borrows, which has the effect of reducing the current Cap credits.

The preliminary Schedule F accounting for the 1997/98 – 2005/06 water years indicates that the NSW Murray valley is cumulatively 832 GL below Cap. Long-term modelling undertaken by DNR prior to recalibration indicated that, were development and water access rules to remain as they currently are, the average annual diversions for the future will be 4% below the average annual Cap diversions.

**Mulwala Canal Loss Allowance**

The MDBC has requested that the IAG comment upon the appropriate treatment of losses within the Mulwala Canal system. This canal system is operated by Murray Irrigation Limited (MIL) and forms part of the NSW Murray designated river valley diversion. The MDBC Register of Diversion Definitions defines MIL diversions as:

\[
\text{MIL Diversion} = \text{Mulwala Canal Offtake} + \text{Perricoota Pumps diversion} + \\
\text{Wakool Canal Offtake} – \text{Edward Escape flow} – \\
\text{Yallakool Escape flow} – \text{Perricoota Escape flow} – \\
\text{Finley Escape flow}
\]

Because the Cap diversion is net of the escape flows, NSW is not debited for any water which is passed through the system to meet downstream demand.

However, at issue is the treatment of an allowance made by NSW to MIL for losses incurred within the MIL canal when MIL is transferring water using its escapes. This allowance, which was first applied in 1999/00, was negotiated between MIL and NSW to ensure that NSW and the MDBC had continuing access to the MIL escapes to:

- supply water demand downstream of the Barmah Choke; and
- prevent the Barmah-Millewa Forest from being unseasonally inundated at times of rain rejection.

The allowance is calculated as:

\[
\text{Mulwala Transfer Loss Allowance} = 10\% \times \text{Water Transferred by MIL for River Murray Water and the NSW Government.}
\]

Where:

\[
\text{Water Transferred} = \text{Minimum (NSW Edward Escape Order, Edward Escape Release – Wakool Canal Diversion)} + \text{minimum (NSW Wakool Escape Order, Wakool Escape Release)} + \\
\text{minimum (NSW Yallakool Escape Order, Yallakool Escape Release)} + \text{minimum (NSW Perricoota Escape Order, Perricoota Escape Release)} + \text{minimum (NSW Finley Escape Order, Finley Escape Release)}
\]

The Wakool Canal diversion is subtracted from the Edward Escape release because MIL is required to supply this canal from the Edward Escape whenever possible.
The Mulwala Transfer Loss allowance, although a loss estimate occurring within the Mulwala Canal System, has:

- since July 1999, been subtracted from the diversion that is debited against the MIL allocation;
- since July 2002, by agreement with Victoria, been treated in the River Murray Accounts as a loss that is shared equally by NSW and Victoria; and
- since July 1999, been subtracted from the NSW Murray designated river valley Cap diversion.

The subtraction of the Mulwala Transfer Loss Allowance from the Cap diversion is contrary to the defined diversion in the Register of Diversion Definitions which was approved by the Murray-Darling Basin Commission in August 2001 and subsequently amended on 10 December 2002. Since July 1999, NSW has subtracted an accumulated 125 GL from the reported NSW Murray Diversion for this allowance.

At its meeting with NSW on 25 October 2006, the IAG was presented with the arguments for and against adjusting the NSW Murray Cap diversion for the Mulwala Transfer Loss Allowance.

Arguments for not subtracting the Mulwala Transfer Loss Allowance

- It is contrary to the agreed diversion definition;
- The loss occurs within part of the irrigation supply system and all other such losses are accounted as diversions;
- Losses that normally occur in a river channel benefit the environment whereas losses within the Mulwala system do not necessarily benefit the environment;
- The allowance did not exist in 1993/94;
- The allowance is not included in the Cap conditions model used to calculate annual Cap targets;
- The capacity of the Mulwala system to bypass flows around the Barmah Choke is utilised to meet downstream irrigation demand. It is therefore inappropriate that losses incurred by this transfer should come from the environment’s share of the water; and
- The selection of 10% as the marginal loss for transferred water was derived by negotiation between MIL and NSW. Arrangements made by NSW to maintain access to the escapes should not automatically alter the NSW Murray Cap determined by the Ministerial Council.

Arguments for subtracting the Mulwala Transfer Loss Allowance

- Conceptually, this allowance is for a loss that would otherwise have been incurred along a river system, and all such losses are considered to be outside of the Cap.
- Agreement to the Mulwala Loss allowance was necessary to maintain Commission access to the Mulwala Escapes. Disallowing the adjustment to the NSW Cap may have potential to result in reduced access to the bypass capacity;
- By reducing the pressure on the Barmah Choke and the associated risk of unseasonal flooding of the Barmah-Millewa Forest, the bypass arrangement reduces unseasonal losses in the river channel and provides environmental benefits;
- Seepage losses from the canal system, including from the bypass flows, contribute to the recharge of groundwater systems which eventually returns water to the river;
- Conditions for significant transfers of this type did not exist prior to 1993/94; and
- The 10% allowance is a fair approximation to the marginal losses incurred by MIL in transferring water for the MDBC.

Discussion

The two options for maintaining the integrity of the Cap accounting are:

- Follow the current rule as defined in the Diversions Definition Register and disallow the subtraction of Mulwala Loss Allowance from the NSW Murray diversions;
- Change the rule by amending Diversions Definition Register and allow the subtraction of Mulwala Loss Allowance from the NSW Murray diversions.

The IAG considers that under the current rule the only option left to it is to disallow the Mulwala Loss allowance subtraction. However, the IAG recognises that the Council may choose to take the second option of amending the Diversions Definition Register. It should be noted that Schedule F and the Diversions Definition Register are currently under review. The IAG considers that this option would have other implications in terms of the integrity of the Cap based on 1993/94 conditions such as the need to revise all the existing models, with
consequential technical and modelling resource implications. A concession to depart from the 1993/94 level of development conditions may have merits in certain cases like this. However, a decision to allow concession in one valley may open up demand for such concessions in other valleys and may also have other implications. All implications need to be explored before any such decision is taken.

IAG Determination

The IAG has considered the arguments put to it and recommends that the Mulwala Transfer Loss Allowance should not be subtracted from the NSW Murray Cap Diversion. Its primary consideration in making this recommendation is to ensure consistent, transparent and compliant Cap accounting. Subtracting the transfer loss allowance is not provided for in the MDB Register of Diversion Definitions, is not in 1993/94 conditions, is not in the Cap conditions model and is inconsistent with Cap accounting for other diversions.

Decisions about River Murray system operations, which among other things are to best balance supply with demand within operational constraints, including environmental implications of exceeding river channel capacity, are considered to be quite a separate matter from Cap accounting. The estimation of the transfer loss allowance is also considered to be a separate matter. Should the Council consider the option of amending the Register of Diversion Definitions in future to allow the Mulwala Loss Allowance subtraction, the IAG recommends that the Council should give prior consideration to the consequences of the decision on the integrity of the Cap.

Murrumbidgee Valley

Resource availability

There was some respite from low levels of water availability during the 2005/06 water year, although drought conditions returned in March 2006, resulting in storage levels returning to very low levels at the end of the year. Improved water availability was, in part, through additional releases from the Snowy scheme. An agreement for a third major advance of water from Snowy Hydro was struck between Snowy Hydro Ltd, the NSW Government and the irrigators in the NSW Murray and Murrumbidgee valleys to advance 185 GL of future releases from the Scheme on a commercial basis. In addition, a further 99 GL of above-target water was advanced and subsequently transferred to users in the NSW Murray Valley.

Payback of the borrowed water is not required prior to 1 July 2006, and is then contingent on general security allocations reaching 50%. As allocations to individual participants (including any volume of carryover held by an individual) exceed 50%, any additional allocations of water must be paid back to Snowy Hydro, until the volume borrowed is repaid.

Snowy Hydro exercised their release flexibility arrangements during the 2005/06 water year, with an additional 385 GL of water released into Blowering Dam. This water was not allocated to users, and was reserved for use during the 2006/07 water year.

The IAG have determined that the Snowy borrow arrangements for 2002/03 are not considered as part of Cap behaviour. Consequently, the arrangements for this year (2005/06), like those for previous years, are also considered outside of Cap. The observed Snowy releases for 2005/06 have been adjusted to remove the effects, as far as possible, of these commercial arrangements for the modelling of annual Cap targets.

A review of aspects of the model calibration for the regulated Murrumbidgee Valley for extended dry periods as has been experienced in recent years has continued during 2005/06, and resulted in revisions to both the modelled Cap targets and the cumulative Cap credit from last year’s assessment for this valley.

NSW has developed management rules that target long-term outcomes in addition to annual outcomes. The Water Reform process has consequently been based on long-term modelling of management rules. An estimate of “current” conditions (presently based on 1999/00 development levels), including current management and environmental flow rules was available for the Water Sharing Plan development.

To assess whether the 1999/00 development levels configured in the Murrumbidgee IQQM continue to represent “current conditions”, a review of the 1999/00 scenario against observed behaviour over the period 1997/98 – 2005/06 was undertaken during 2006.

The observed storage volumes and diversions were compared to those simulated by the 1999/00 “current conditions” model and the model was found to stimulate storage levels quite well. Diversions in the last few years are slightly under-estimated by the model, primarily due to the model under-estimating supplementary flow access, and subsequent diversion of these flows during the very dry periods.
Cap compliance

The Murrumbidgee Water Sharing Plan commenced on 1 July 2004, and included a long-term limit on diversions that is currently estimated to be 1% below Cap. Diversions were below the estimated annual Cap target by 253 GL and this results in a cumulative Cap credit since 1997/98 of 920 GL. These results have been produced by the Murrumbidgee IQQM Cap model, for which further improvements have been made during 2005/06.

Representation of the Lowbidgee district is included within the Murrumbidgee IQQM. The results for both the regulated diversions and Lowbidgee must still be considered preliminary at present until the model is independently audited and accredited under the provisions of Schedule F of the Murray-Darling Basin Agreement. The results presented here exclude Snowy borrows from the Cap modelling, which has the effect of reducing the current Cap credits.

Lachlan Valley

Resource availability

Some allocations to General Security users were possible during the 2005/06 water year, for the first time since 2001/02. An allocation of 19% was announced in November 2005, with around 5% carried over into the current year.

The Lachlan Valley Water Sharing Plan commenced on 1 July 2004, featuring the introduction of an annual limit on diversions equal to 75% of entitlements, removal of all supplementary access (previously known as off-allocation), continuous accounting, an additional water quality allowance of 20 GL, and extended periods of environmental releases – combined with a minimum inflow threshold before releases commence.

In September 2003, severe water shortage provisions were introduced that suspended the rules relating to the environmental “translucent” releases (a proportion of inflows to Wyangala dam), reduced end-of-system flow requirements, and allowed differential sharing arrangements between high security water users based on water requirements. Whilst the Lachlan Water Sharing Plan commenced on 1 July 2004, inflows to Wyangala over the previous three years were the lowest on record, and the severe water shortage provisions have remained in place throughout 2005/06.

In general, the differences can be explained by the fact that:

- The extreme drought conditions experienced in the Lachlan valley since 2001/02 have resulted in record low inflows. This, in turn has resulted in changed operational practices (particularly relaxation of end-of-system flow targets) and the suspension of the Water Sharing Plan, shortly after its introduction in July 2004. None of these actions, however, is simulated by the model.

Consideration is currently being given to whether inclusion of the changed river operation practices during the current drought period within Cap modelling as well as current-conditions modelling is practicable, and would represent a more appropriate estimate of both Cap and current conditions.

Cap compliance

Diversions were below the annual Cap target by 42 GL, and the valley is cumulatively 48 GL in credit since 1997/98. In addition, simulated Cap storage levels in mid-2006 are 50 GL higher than the actual levels, suggesting that Cap targets may be higher than diversions in the near future, and result in further credits. The Lachlan IQQM Cap scenario modelling has been independently audited and approved for use under Schedule F of the Murray-Darling Basin Agreement by the MDBC.

The Schedule F accounting for the 1997/98 – 2005/06 seasons indicates that the Lachlan Valley is cumulatively 48 GL below Cap. Long-term simulations continue to indicate that average annual current-conditions diversions are 3% below Cap diversions.

Macquarie Valley

Resource availability

There was some respite from the continuing drought and low levels of water availability in the Macquarie Valley during 2005/06. An allocation of 44% was announced for General Security users over the summer period as inflows occurred. Around 7% was carried over from the previous water year and, due to the late timing of the increased resources, approximately 28% has been carried over into 2006/07.

The Macquarie Water Sharing Plan commenced on 1 July 2004, featuring additional environmental releases from Windamere Dam in the Cudgegong Valley, and a long-term limit on diversions that is currently estimated to be 10% below Cap.
Cap compliance

The simulation of inflows to Burrendong Dam within the Macquarie IQQM has been recalibrated during 2005/06 following revisions to observed flow data and the revised model has been used to produce Cap targets for this year’s accounting. The revised Cap modelling has also been re-submitted for independent auditing and accreditation. The Macquarie valley has a cumulative Cap credit from 1997/98 to 2005/06 of 789 GL, the majority of which has occurred during the last three years. For Cap purposes, results are considered preliminary at present until the model is independently audited and accredited under the provisions of Schedule F to the Murray-Darling Basin Agreement.

The preliminary Schedule F accounting for the 1997/98 – 2005/06 water years indicates that the Macquarie Valley is cumulatively 789 GL below Cap. Prior to the recent model recalibration, long-term simulations indicate that average annual current-conditions diversions are 13% below Cap levels.

Namoi/Peel Valley

Resource availability

The water year commenced in the Namoi Valley with moderate availability of water in individual accounts, equivalent to 38% of the Valley general security entitlement. A further 31% of additional allocation was made available during the year, mostly in the summer period. The Manilla system received an annual allocation of 100%. The Peel valley again received low allocations for General Security users early in the water year, with allocations rising to only 45% by late summer. This year, water availability was only slightly increased by supplementary (previously known as off-allocation) access during the year.

The designated Namoi Valley is modelled using two IQQMs, one for the Namoi/Manilla system and one for the Peel system. A comparison of long-term average diversions from the Cap model and a Namoi/Manilla model configured to represent “current” conditions (2003/04 development levels and Water Sharing Plan rules) indicates that diversions are expected to be around 6% below Cap over the longer term.

Results from the Peel IQQM Cap scenario have been included in this year’s Schedule F accounting. Whilst a “current conditions” scenario has been developed, this represents only minor changes to system management, and the results are virtually the same as the Cap model. A Water Sharing Plan will be developed for the Peel valley, and IQQM will be used to evaluate various options that might be considered by the community-based committee process.

As reported last year, NSW has put forward an upgraded Cap model for the Namoi Valley from that accredited by the independent auditor. The changes primarily involve the Cap model updated to the Graphic User Interface (windows-based) version of IQQM. The model upgrade, whilst a change from the accredited model version, did not affect results, and a report detailing the upgrade has been provided to the MDBC for independent assessment.

For this year and last year, Cap modelling has used outflows from the Peel Cap model, rather than the observed outflows from the Peel Valley into the Namoi Valley.

As was the case in previous years, a review of the latest conditions scenario (changed to 2003/04 from 1999/00 used last year) against observed behaviour over the period 1997/98 – 2005/06 was again undertaken. The review assesses whether the 2003/04 development levels configured in the Namoi IQQM represent “latest conditions”.

From this review, it is considered by DNR that the 2003/04 conditions scenario remains representative of current behaviour and development in the Namoi/Manilla system.

Cap compliance

Diversions for the combined valleys have been below the annual Cap targets since 1997/98 by a cumulative total of 56 GL, and the observed storage levels are very close to those simulated in the Cap model. The Namoi IQQM Cap scenario modelling has been independently audited and approved for use under Schedule F of the Murray-Darling Basin Agreement by the MDBC. The Peel IQQM Cap model has also been submitted for independent audit.

Diversions in the Namoi/Peel combined valley were 47 GL below the Cap target for 2005/06, and are cumulatively 56 GL below Cap since 1997/98. Long-term simulations indicate that average annual current conditions diversions are 7% below Cap diversions for the Namoi regulated system.
**Gwydir Valley**

**Resource availability**

The water year commenced in the Gwydir Valley with modest availability of water in individual accounts, equivalent to 25% of the Valley General Security entitlement, with a further 22% becoming available during the summer period. As was the case last year, water availability was also boosted by some supplementary (previously known as off-allocation) access during the year.

The Gwydir Valley IQQM was recalibrated during 2004 and 2005 to reflect improved representation of irrigator infrastructure and behaviour – particularly with regard to on-farm storages and floodplain harvesting. A comparison of long-term average diversions from the Cap model currently submitted for audit and a model configured to represent “current” conditions (2002/03 development levels and Water Sharing Plan rules) indicates that diversions are expected to be 14% below Cap over the longer term.

To assess whether the 2002/03 development levels configured in the Gwydir IQQM continue to represent “current conditions”, a review of the 2002/03 scenario against observed behaviour over the period 1997/98 – 2005/06 was undertaken.

**Cap compliance**

Following recalibration work last year, further refinement of the Gwydir IQQM was undertaken during 2005/06. The recalibrated model has now been submitted for independent review under the established MDB process. The results indicate that diversions are cumulatively 335 GL below Cap since 1997/98. However, the difference between observed storage levels and those simulated under Cap conditions at 30 June 2005 indicate that 122 GL of Cap debits may occur in the near future. Modelling also indicates that diversions are expected to be 14% below Cap over the longer term.

**Border Rivers**

**Resource availability**

The water year commenced in the NSW Border Rivers with moderate availability of water in individual accounts, equivalent to 48% of the Valley General Security entitlement, and an additional 38% became available through the year, generally during the summer period. A small amount of supplementary access was also available.

Whilst work with community representatives to develop a Water Sharing Plan has occurred during 2004/05, implementation of a Plan is currently awaiting finalisation of the process agreed under the formal Inter-governmental Agreement on water sharing between NSW and Queensland.

Queensland and NSW are currently trialing the water sharing provisions of the draft Inter-governmental Agreement that would see each state limited to its long-term diversion as existed under 2002 levels of development with the application of environmental flow rules, not including floodplain harvesting diversions. This arrangement is to result in a plan limit estimated to be 191 GL. Subject to agreement on floodplain harvesting activities, this is estimated to provide an end-of-system flow at Mungindi of around 61% of the natural flow. This is the volume of flow expected at Mungindi under the November 1999 conditions.

**Cap compliance**

The definition of Cap within the NSW Border Rivers (which includes enlarged Pindari Dam) is still to be formally agreed. Upon formal agreement, a submission to the IAG will be prepared outlining the basis for the NSW Cap, and NSW performance against this Cap from 1997/98.

**Intersecting Streams**

**Cap compliance**

The Warrego, Paroo, Culgoa, Narran and Moonie Rivers flow across the NSW-QLD border, and the reaches of these rivers that are within NSW are designated as the “Intersecting Streams” valley under Schedule F to the Murray-Darling Basin Agreement, for Cap accounting purposes. Presently, no Cap has been formally established for these rivers, and there is no monitoring of usage. However, “Macro” Water Sharing Plans for unregulated areas within NSW are currently being established, which will:

- facilitate conversions of licences to the new Water Management Act 2000;
- provide a framework for establishing Caps; and
- allow for more detailed water access rules for sub-catchments where there is significant competition for resources – either between consumptive users, or users and the environment.
These Macro Plans will apply to the intersecting streams, as well as the unregulated areas of other valleys.

No Schedule F accounting is currently available for the intersecting streams.

**Barwon-Upper Darling**

**Resource availability**

Following the 1999/00 review of Cap implementation, the Valley was formally declared in breach of the Cap. At the August 2000 Ministerial Council meeting, agreement was obtained to report the Barwon-Darling and Lower Darling valleys as one, although the two would be managed separately by NSW.

To address the Cap breach problems, NSW is implementing a new Cap strategy, similar to those applied in other unregulated streams in NSW. The new Cap arrangements apply from 1 July 2006, although final conversion of all entitlements may not be completed until December 2006. The new strategy involves the restructuring of the water entitlements to ensure that future diversions do not exceed the long-term Cap.

Details include:

- completion of a review of historical diversions for all users, which, along with the existing licensed volumes, will form the basis for converting existing entitlements to shares in the long-term Cap for the valley, which is assessed as 173 GL,
- conducting an "Extraction Confirmation and Anomalies Assessment Process" to deal with any disputation over the historical use information, which has also addressed issues associated with late development,
- conducting an independent review of the long-term hydrologic model for the Valley, with a draft report published for public comment.

NSW also intends to develop a Water Sharing Plan for the Barwon-Darling Valley, which will incorporate this proposed Cap strategy to protect volumetric growth, as well as event-based access rules that will protect important flows for the environment and downstream users.

The Barwon-Darling IQQM Cap model has been calibrated, and is available for long-term and annual Cap simulations to assess Cap compliance. For Cap purposes, results are considered preliminary at present until the model is independently audited and accredited under the provisions of Schedule F to the Murray-Darling Basin Agreement.

**Cap compliance**

The preliminary Schedule F accounting for the 1997/98 – 2005/06 period indicates that the Barwon-Darling Valley is cumulatively 277 GL above Cap, and remains well above the 35 GL trigger for Special Auditing based on 20% of the estimated long-term average Cap diversion.

Whilst diversions have exceeded annual Cap Targets, they have averaged 170 GL over the 1997/98 – 2005/06 period, which is below the long-term average diversion of 173 GL. NSW has agreed that the new licensing arrangements currently being implemented will ensure that future diversions also remain no more than 173 GL/year.

**Lower Darling**

**Resource availability**

Allocations for the Lower Darling system returned to normal levels in 2005/06, although there was no supplementary access, and storage levels in Menindee Lakes remained low. General Security allocation was initially limited to 50%, with High Security licences able to receive full allocations this year. However, General Security allocations were increased to 100% shortly after the start of the water year.

**Cap compliance**

The Cap for the regulated sections of the Murray Valley is currently audited on a provisional basis using the Murray Simulation Model (MSM). Recalibration of MSM to better represent 1993/94 conditions commenced during 2002/03, and is expected to be completed in the near future. The results presented here have been produced from the pre-recalibration model currently in use. Preliminary assessments indicate that long-term current diversions are very close to those that would have occurred under Cap conditions.

The preliminary Schedule F accounting for the 1997/98 – 2005/06 period indicates that the Lower Darling Valley is cumulatively 134 GL below Cap, despite diversions in 2005/06 of 41 GL being above the climate-adjusted Cap.

**Combined Barwon-Upper Darling and Lower Darling Cap Accounting**

**Cap compliance**

The preliminary Schedule F accounting for the 1997/98 – 2005/06 period indicates that diversions in the combined Barwon-Darling and Lower Darling Valleys are cumulatively 143 GL above Cap, and above the combined trigger.
for Special Audit of 62 GL. However, given the Special Audit by the IAG following the 2003/04 and 2004/05 Cap reviews, and the intention to limit water availability to the average Cap level in the Barwon-Darling valley, there seems little merit in conducting further Special Audits at present. A Special Audit however is required under the provisions of Schedule F.

4.3.3 Monitoring and Reporting

NSW is progressing with the finalisation of its IQQM models for each of the valleys in the system. With the completion of these models, together with some recalibration to take into account the impact on past records of the drought that has impacted the Basin over the last five years, the Ministerial Council and the Commission can have greater confidence in the Schedule F reporting results.

The use of IQQM models and NSW’s own long-term modelling as a measure of the likely exceedence of the Cap by an individual valley under current management rules, are tasks which are highly data intensive. These models have proven to be particularly sensitive not only to past years’ water-availability and diversion statistics but also to other key drivers of valley behaviour including on-farm storage levels, crop areas, inflows from unregulated streams, climatic conditions and rainfall patterns.

In its 2002/03 Report, the IAG identified the issue of monitoring diversions under the volumetric licences on unregulated streams. Diversions from unregulated streams within NSW are generally not metered, and the majority have only recently been converted from area-based to volumetric licences. However, there are a small number of larger unregulated users below the regulated parts of the Macquarie, Gwydir and Border Rivers systems, close to the Barwon-Darling system, that have metered diversions available. These users received annual volumetric diversion limits prior to the general volumetric conversion process that occurred in 2000, and were metered similarly to Barwon-Darling users. The metered diversions from these users have not been included in diversions reported for either the regulated systems or the Barwon-Darling, and have therefore been identified in Table 6.

Table 6: NSW Unregulated Use Estimates (GL)

<table>
<thead>
<tr>
<th>Valley</th>
<th>Un-metered Use</th>
<th>Metered Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murray</td>
<td>28 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Lower Darling</td>
<td>0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Barwon-Darling</td>
<td>0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Murrumbidgee</td>
<td>42 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Lachlan</td>
<td>15 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Macquarie</td>
<td>35 3 22 16 21 15 0 9 3 3</td>
<td></td>
</tr>
<tr>
<td>Namoi</td>
<td>78 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Peel</td>
<td>0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Gwydir</td>
<td>10 1 1 4 0 2 0 0 2 2 2</td>
<td></td>
</tr>
<tr>
<td>NSW Border Rivers</td>
<td>14 0 4 2 2 2 0 5 3 3</td>
<td></td>
</tr>
<tr>
<td>Intersecting Streams</td>
<td>3 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
</tbody>
</table>
Unmetered use estimates are taken from the volumetric conversion process (2000), based on crop areas surveyed and assessed irrigation requirements. Metered use totals are from time-event meters as used in the Barwon-Darling system.

NSW has advised that it intends to cap unmetered users according to the average 1993/94 – 1998/99 diversion estimate arising from the volumetric conversion process. Presently, no Cap has been formally established for these unregulated streams, and there is no monitoring of usage. However, “Macro” Water Sharing Plans for unregulated areas within NSW are currently being established.

### 4.3.4 Administration of the Cap

NSW has adopted a series of water management and allocation rules (Water Sharing Plans) for the purpose of managing the level of diversions within the Cap. These rules, which include the Environmental Flow Rules that NSW had previously introduced, are designed to ensure that diversions from the various valleys comply with the Cap in the longer-term.

In 2005/06, there have been few changes to these rules reflecting the fact that the Water Sharing Plans came into operation from 1 July 2004 and low water-availability has limited the opportunity or need to make such rule changes.

The Water Sharing Plans provide the legislative basis for the implementation of management rules, and define a level of consumptive water access for the next 10 years.

### 4.3.5 IAG Assessment

The IAG acknowledges the timely receipt of an informative report from NSW together with data in line with the Schedule F format.

Re-calibration of a number of the IQQM models to take into account the lessons learnt from the last five years of severe drought conditions has been substantially completed and a number of models have been recalibrated. The IAG has commented on previous occasions on the need to ensure confidence in the accuracy and operation of the models. The completion of this re-calibration process contributes to greater confidence in the modelling and the Schedule F process.

The IAG considers that subtraction of the Mulwala Loss Allowance from the NSW Murray Diversion is not permissible under the current rule as defined in the Diversions Definition Register. However the IAG recognises that the Council may choose to change the rule by amending the Diversions Definition Register and allow the subtraction. Such a decision may have many implications for the Cap and needs to be explored prior to taking the decision.

The IAG confirms that the Barwon-Darling/Lower Darling exceeds the trigger for a Special Audit. Other valleys appear to be within the Cap, although a final position on the Border Rivers (including Pindari) must await final agreement on the Cap for this system.

The IAG notes that the long-term modelling that NSW uses and assesses its performance against is premised on a regular series of wet and dry years. As the drought continues and water availability reaches new record lows, the IAG will be concerned to ensure that the modelling used by NSW to determine its Water Sharing Plans still remains relevant and that appropriate checks are performed as have been undertaken by NSW in 2005/06 year.

There has been progress on negotiations between NSW and Queensland on the Cap for the Border Rivers. The finalisation of management flow rules and the formal specification of a volumetric Cap for both sides of the border were expected in the 2005/06 year but have been further delayed. It is expected that progress will be made during the 2006/07 year with draft management rules becoming available early in 2007.

The IAG notes that the NSW Government has entered into an agreement with the ACT Government (and with the Federal Government a third participant) for the supply of water in certain circumstances to areas bordering the ACT. This will require an agreement on Cap arrangements, and the IAG awaits advice on details of any arrangements agreed between the parties so as to ensure that these arrangements are reflected in the Schedule F accounting.
4.3.6 Conclusions/Recommendations

- Diversions in 2005/06 were 4987 GL compared to 3666 GL in 2004/05;
- IQQM Cap models have now been prepared for all river valleys, with the exception of the Murray and Lower Darling. Further recalibration has occurred and the models are awaiting accreditations;
- the Mulwala Loss Allowance should not be subtracted from the NSW Murray Cap Diversion under the current rule. Should the Council choose to change the rule by amending the Register of Diversion Definitions in future to allow the Mulwala Loss Allowance subtraction, the IAG recommends that the Council should give prior consideration to the consequences of the decision on the integrity of the Cap.
- The preliminary Schedule F accounting for the 1997/98 – 2005/06 period indicates that diversions in the combined Barwon-Darling/Lower Darling Valley are cumulatively 143 GL above Cap, and above the combined trigger for Special Auditing of 62 GL. Therefore a Special Audit is required for this valley although the IAG notes that the combined Barwon-Darling/Lower Darling Valleys has already been declared to be in breach of the Cap and the NSW authorities, in acknowledging the breach, advise that they have no additional information beyond that already provided to the IAG that would be relevant to a further Special Audit at this time;
- The IAG has been unable to assess the Cap compliance of the NSW Border Rivers because the Cap has not been defined in that valley. The IAG has previously expressed concern that the Border Rivers will be found to be in breach once a Cap is defined. Finalisation of a Cap together with agreed Water Management Plans are expected in June 2007 although the first series of usage data will not be available until the 2007/08 year;
- Diversions have been below Cap trigger levels for other valleys in NSW;
- Upon completion of the integrated 1993/94 and current conditions model for the Border Rivers, NSW should submit the proposed Cap for that system for assessment by the IAG of the appropriate allowance for the enlarged Pindari Dam.
4.4 Queensland

4.4.1 The Cap

In line with the Council’s earlier decisions, the Queensland Cap is to be established in accordance with the provisions of Schedule F of the Murray-Darling Basin Agreement following the completion of the water resource planning processes.

Queensland has now finalised Water Resource Plans (WRP) in all its Murray-Darling Basin valleys, and consequently has provided a statutory framework that caps diversions from watercourses, lakes, springs and overland flows. WRPs for the Border Rivers, Moenie, Nebine, Warrego and Paroo valleys were gazetted as subordinate legislation on 5 December 2003 and the final plan for the Condamine-Balonne was gazetted on 12 August 2004.

Under the Water Act 2000, Resource Operations Plans (ROP) are developed to implement the provisions of the WRP. Diversion caps for Queensland valleys are implemented as part of the monitoring, auditing and reporting provisions of the ROPs. ROPs have either been finalised or are expected to be finalised by late 2007.

A moratorium on the issuing of new licences has been in place in all Queensland Murray-Darling valleys since prior to March 1995 (major sections of the Lower Balonne have had the moratorium in place since October 1991 and other sections including the majority of the Border Rivers since 1992). There has been a prohibition on the commencement of any new overland flow works since September 2000 (Condamine and Balonne and Border Rivers) and June 2001 (all other valleys). Despite these moratoriums, there has been very significant growth in storage capacity and diversions within existing licences.

The WRPs continue the moratorium on the development of infrastructure related to water-harvesting licences until the ROPs are finalised. The WRPs also continued the moratorium on works that would increase the take of overland flow. Works that allow taking of overland flow water are now managed as assessable developments under the Integrated Planning Act and any growth in take by those works is prohibited under the WRP. When implemented, the management rules under the ROPs should ensure that there will be no increase in the average volume of water available for consumptive use.

4.4.2 2005/06 Diversions

The finalisation of ROPs for the Moonie, Warrego, Paroo and Nebine catchments has resulted in a shortened reporting period for these catchments to align them with the 1st July to 30th June water year applicable to each. Reporting for the Border, MacIntyre Brook and Condamine/Balonne catchments remains for the 1st October to 30th September period until ROPs are finalised.

Queensland is now reporting separately on the Nebine catchment as the ROP for this catchment has been finalised. This is a substantially undeveloped catchment and the limited diversions attributable have previously been included in the Condamine/Balonne figures.

Diversions over the last 13 years for the total Queensland section of the Murray-Darling Basin is summarised in Table 7:

<table>
<thead>
<tr>
<th>Year</th>
<th>Diversions (GL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993/94</td>
<td>336</td>
</tr>
<tr>
<td>1994/95</td>
<td>176</td>
</tr>
<tr>
<td>1995/96</td>
<td>528</td>
</tr>
<tr>
<td>1996/97</td>
<td>467</td>
</tr>
<tr>
<td>1997/98</td>
<td>741</td>
</tr>
<tr>
<td>1998/99</td>
<td>609</td>
</tr>
<tr>
<td>1999/00</td>
<td>541</td>
</tr>
<tr>
<td>2000/01</td>
<td>688</td>
</tr>
<tr>
<td>2001/02</td>
<td>341</td>
</tr>
<tr>
<td>2002/03</td>
<td>214</td>
</tr>
<tr>
<td>2003/04</td>
<td>815</td>
</tr>
<tr>
<td>2004/05</td>
<td>392</td>
</tr>
<tr>
<td>2005/06²</td>
<td>305</td>
</tr>
</tbody>
</table>

² Reporting for the Moonie, Nebine Warrego and Paroo catchments is for period 1st October 2005 to 30 June 06. Remainder of catchments reported as per previous years (1 Oct to 30 Sept).
Table 8: Diversions (GL) by valley in 05/06

<table>
<thead>
<tr>
<th>Catchment</th>
<th>Total Diversions</th>
<th>Overland Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condamine/Balonne</td>
<td>175</td>
<td>11</td>
</tr>
<tr>
<td>Border</td>
<td>105</td>
<td>6.5</td>
</tr>
<tr>
<td>Machntyre Brook</td>
<td>19</td>
<td>0.1</td>
</tr>
<tr>
<td>Border Total</td>
<td>124</td>
<td>6.6</td>
</tr>
<tr>
<td>Moonie</td>
<td>2.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Nebine</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Warrego</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Paroo</td>
<td>0.04</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td><strong>305.0</strong></td>
<td><strong>24.0</strong></td>
</tr>
</tbody>
</table>

The categories of 2005/06 diversions are summarised in Table 9.

Table 9: Queensland Basin Diversions Categories (GL)

<table>
<thead>
<tr>
<th>Diversion Category</th>
<th>Diversion (GL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation Area Channels</td>
<td>59</td>
</tr>
<tr>
<td>Private Diversions</td>
<td>96</td>
</tr>
<tr>
<td>Water Harvesting</td>
<td>123</td>
</tr>
<tr>
<td>Unregulated Stream Licences</td>
<td>17</td>
</tr>
<tr>
<td>Urban, Industrial &amp; Stock</td>
<td>10</td>
</tr>
<tr>
<td>Total (GL)</td>
<td><strong>305</strong></td>
</tr>
</tbody>
</table>

Information on diversions is now available on a valley by valley basis (Table 8) and in future years the Queensland results will be tabulated in the same format as other states when Caps and performance against climate-adjusted annual Cap targets is available.

General Overview

The Queensland section of the Murray-Darling Basin has again recorded below average rainfall across the area generally and near record lows in many areas. The only near average rainfall recorded occurred in the October to December 2005 period though the intensity was variable and did not result in any significant volume of runoff in most catchments. All catchments recorded passing flows well below long-term average annual flow volumes, most were amongst the lowest recorded. The western (Warrego and Paroo) catchments benefited from a slightly above average June 2006 rainfall event which generated flow in both streams.

The poor rainfall across the Basin in early to mid 2005 saw most major in-stream storages entering the 2005/06 water year at or below 30% of storage capacity. The exception was Beadmore Dam on the Balonne River which was at around 75% of capacity. The major storages have ended the year much as they started it – at or below 30% of storage capacity – with the exception of Coolmunda Dam (filled to 98.6% in December 2005) which recorded a moderate increase to finish the year at 50%. Leslie Dam in the Upper Condamine remains at critical levels of supply for the fourth consecutive year.

The rainfall in 2005/06 limited water-harvesting opportunities and off-stream storages (ring tanks) generally started and finished the year near empty.

Overland flow storages also generally started and finished the year near empty. In both cases some water was taken during the December/January period and used to save crops.

Stream flow during the year across the catchments has been uniformly low. There was little variability in flows as a consequence of a severe lack of runoff producing rainfall events. Flow patterns within each catchment though are still proving variable from year to year with some western streams recording flows in the traditionally dry (winter) period of the year and none during the (normally) wetter summer months. Flow information is summarised for each catchment below.

- Flows in the Border Rivers at Goondiwindi were around 30% of the long-term average of 827 GL. The flow out of the Border Rivers into NSW was supplemented by a 28 GL inflow from the Weir River.
- Flows in the Condamine-Balonne were overall well below average and were only recorded in the period from October 2005 to January 2006. There were no flows recorded in the subsequent period through to September 2006. 24 GL was recorded passing Chinchilla Weir and only 123 GL through St George, ie, around 10% of the long-term average of 1150 GL.
- Flows in the Moonie River were amongst the lowest recorded and well below average with just 5 GL recorded at Fenton just upstream of the NSW border. This is around 3% of the long-term average annual flow through Fenton of 165 GL.
• Flows in the Nebine catchment were also limited and were under 40% of the average of 10 GL for the Wallam Creek part of the catchment.
• Flows in the Warrego River were also amongst the lowest recorded with less than 7% of the long term average of 375 GL flowing past Cunnamulla.
• Paroo River flows were equally limited with only 33 GL (around 6%) recorded past Caiwarro where the average annual volume of flow is 538 GL.

Flows and related water-harvesting are described in detail for the various valleys as follows.

**Condamine and Balonne**

**Condamine (Darling Downs)**

Flows in the Upper Condamine were limited with only 6 GL passing Warwick and 21 GL passing Cecil Weir during the year. Chinchilla Weir filled twice during the year (early December and late January). The Charleys Creek system contributed over 21 GL to the Condamine River in December 2005.

Water-harvesting diversions for the Condamine section (upstream of Nangram) are estimated at 15 GL. Diversion occurred in the period up to January 2006 with no diversion opportunity since that date.

There was 24 GL recorded passing through Chinchilla for the year. Average annual flow is estimated at 587 GL at this point.

**Balonne**

There was only one significant flow event in the Balonne during the year. Good rainfall in the Lower Condamine catchment and Upper Balonne areas in December followed on from lighter ‘soaking’ rainfall in the month preceding and produced the only significant runoff event for the Balonne River for the year. The flow in December 2005 resulted in Beaudine Dam filling with water-harvesting allowed downstream. Some 123 GL passed St George with the flow peaking at around 14 GL/day.

Total diversion for water-harvesting for the year was 55 GL, 5 GL between Chinchilla (Nangram) and Beaudine storage, and 50 GL from Beaudine storage downstream.

Over 45 GL was passed downstream for stock, domestic and environmental needs.

Total flow through St George was 123 GL for the year. This is similar to last year’s figure and well below the long-term average annual volume of flow at St George of 1152 GL.

**Border Rivers**

While there were no major flow events in the Macintyre River during the reporting period, there were a number of small to moderate flows over the period from late November 2005 to early March 2006. Three of these flows reached a peak just over 7 GL/day at Goondiwindi. A total of 2.5 days of access was provided over the duration of these events.

Total water-harvesting within the Queensland section of the Border catchment was 50 GL.

Total volume of flow through Goondiwindi for the year was 247 GL with the Weir River contributing a further 28 GL to the system. Average annual volume of flow through Goondiwindi is 852 GL and average annual volume through Talwood (Weir River) is 160 GL.

**Moonie**

The ROP for the Moonie catchment was finalised on 20 January 2006. As such this report is for the period 1st October 2005 to 30th June 2006. The Moonie River experienced a number of small flows in the October to March period with no flow from March to end of June. The net total volume passing the Fenton gauge during the period was 5 GL. This is less than 5% of the long-term average annual volume of flow at this gauging station of 165 GL, and in contrast to the near average flows received over the last 2 years.

The small flows provided very limited opportunity for water-harvesting along the system. Total estimated water-harvesting extraction for the 2005/06 period was 3 GL.

**Nebine**

The ROP for the Nebine catchment was finalised on 20 January 2006. As such this report is for the period 1st October 2005 to 30th June 2006. The Nebine catchment consists of the Nebine, Mungallala and Wallam Creek. Streamflow is currently only recorded for Wallam Ck. There were a number of small flows recorded throughout the period. The net total volume passing the Cardiff gauge during the period was less than 4 GL. This is a relatively new station and the long-term average annual volume of flow at this gauging station is currently 10 GL, though this figure may vary over time.

There is very limited water-harvesting, irrigation and overland flow development in the Nebine catchment.
Warrego

The ROP for the Warrego catchment was finalised on 20 January 2006. As such this report is for the period 1 October 2005 to 30 June 2006. The Warrego River system’s familiar summer flow pattern failed to eventuate this year. Limited water-harvesting opportunity was available during the April and June events with water-harvesting diversion less than 1 GL for the year.

Total flow recorded through the Cunnamulla gauge for the period was 25 GL compared to the long-term average of 375 GL. Flow records at Cunnamulla are limited (14 years) and the long term average may vary over time.

Paroo

Flows in the Paroo were relatively small though well distributed throughout the period. Unlike the Warrego system, a number of small flows were recorded during the summer period though the peak flow recorded for the period was in June at just over 2.5 GL/year.

There is very limited water-harvesting, irrigation and overland flow development in the Paroo catchment.

Total volume of flow through Caiwarro for the period was 33 GL compared to an average annual flow of 538 GL. This figure is around 6% of the average annual flow volume.

Water-harvesting

Water volume harvested from the more developed catchments in the October 2005 to September 2006 period are summarised in Table 10. Adding the volumes harvested in the less developed catchments gives a total of 123 GL water-harvesting diversion for the year.

Table 11 provides an indication of stream-based ring tank storage capacity. Capacities have remained relatively unchanged since the moratorium was implemented from September 2000. This follows growth in storage capacity from an estimated 1146 GL in 1999 to 1878 GL in September 2003. Work is progressing to better quantify these volumes.

Works that allow taking of overland flow water are now managed as assessable development under the Integrated Planning Act and any growth in take by those works will not be allowed under the WRPs or the subsequent ROPs.

Table 11: Stream-Based Ring Tank Capacity (GL)

<table>
<thead>
<tr>
<th>Catchment</th>
<th>Sept 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condamine-Balonne</td>
<td>1333</td>
</tr>
<tr>
<td>Border</td>
<td>332</td>
</tr>
<tr>
<td>Moonie</td>
<td>21</td>
</tr>
<tr>
<td>Warrego/Paroo</td>
<td>12</td>
</tr>
<tr>
<td>Overland Flow</td>
<td>180</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1878</strong></td>
</tr>
</tbody>
</table>

Table 10: Water-harvesting

<table>
<thead>
<tr>
<th>Location</th>
<th>Average Annual Flow Volume (GL)</th>
<th>2005/06 Recorded Flow Volume (GL)</th>
<th>Approximate Volume Harvested (GL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condamine River @ Chinchilla</td>
<td>587</td>
<td>24</td>
<td>15</td>
</tr>
<tr>
<td>Condamine River U/S of Chinchilla</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balonne River @ St George</td>
<td>1152</td>
<td>123</td>
<td>55</td>
</tr>
<tr>
<td>Condamine-Balonne from Chinchilla to the Qld/NSW border</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macintyre River @ Goondiwindi</td>
<td>852</td>
<td>247</td>
<td></td>
</tr>
<tr>
<td>Weir River @ Talwood</td>
<td>160</td>
<td>123</td>
<td>50</td>
</tr>
<tr>
<td>Border Rivers Catchment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total (Condamine Balonne &amp; Border only)</strong></td>
<td></td>
<td></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>
**Irrigation**

Most major in-stream storages entered the year at or below 30% capacity. The exception was Beardmore Dam at St George which was at around 75%. Leslie Dam, which supplies the Upper Condamine Water Supply Scheme, continued to be at a critical level storing only 10% of capacity and with no announced allocation for irrigation.

There was limited inflow to Glenlyon Dam during the year which saw it rise from around 20% to finish the year at around 30%. The Dumaresq Water Management Area (Glenlyon Dam) operates under continuous accounting arrangements with no annual announced allocation.

Rainfall in November and early December 2005 led to Coolmunda Dam reaching nearly 99% capacity. This was the only inflow event of note for the period.

Beardmore Dam also filled (and overflowed) in December 2005 and received some inflow at other times. The storage finished the year at around 30%. Water availability for the year was good which is reflected in the total diversions of 69 GL recorded for the St George Water Supply Scheme.

Chinchilla Weir spilled twice during the year (early December 2005 and late January 2006) but has ended the year at around 30%. Total extraction for the scheme was a little over 2 GL which represents 75% of entitlement.

Leslie Dam again received minimal inflows during the year and continues to store around 10% of capacity. The 13 GL allocation water taken in the Upper Condamine Water Supply Scheme, was all taken from natural flows in the Condamine River.

Approximately 155 GL of a total nominal allocation of 220 GL was delivered through the irrigation schemes for the year. A further 12 GL was transferred from NSW for use on the Queensland side of the Border Rivers.

Cooby Dam which supplies urban water to Toowoomba city and surrounds fell from around 40% to 30% of total volume over the year. Approx 10% of the storage volume is not currently commandable by Toowoomba City Council infrastructure.

**Unregulated Irrigation**

The usage associated with unregulated irrigation licences is small in comparison with water diverted by water-harvesting or captured in scheme storages. A significant proportion (approx 50%) of the total unregulated irrigation use in the Queensland section of the Basin relies on sewage effluent discharge from Toowoomba city into the Gowrie Oakey Creek system. The availability of water for urban use in Toowoomba city has been subject to increasing levels of restriction over this year which has resulted in a significant decrease in effluent discharge. This limitation on resource availability has resulted in a decrease in diversions for the year.

The remainder of the diversions largely depend on the availability of water from naturally flowing streams and naturally occurring waterholes, with most usage from the perennially flowing streams on the western slopes of the Great Dividing Range. The prolonged drought conditions continue to seriously affect flows in these streams. Most of these streams with the exception of the Granite Belt area, have been subject to a total ban on irrigation through most of the year.

Usage for the 2005/06 year across the catchments is estimated at approximately 17 GL. This figure reflects metered urban usage only, though most industrial use is included in these figures. Stock use is not included, and no metered data exists for this use type.

**Urban, Industrial & Stock**

Urban, industrial, and stock usage remains fairly static in the catchment as it is generally allocated as high security water and is normally able to be reliably supplied. Total usage for the 2005/06 year is estimated at 10 GL, most of which is accounted for as town water supply. This figure requires validation when data becomes available.

**4.4.3 Progress with the Planning Process**

Queensland has finalised WRPs in all its Murray-Darling Basin valleys in accordance with Queensland’s Water Act 2000. WRPs for the Border Rivers, Moonie, Nebine, Warrego and Paroo valleys were gazetted as subordinate legislation on 5 December 2003 and the final Plan for the Condamine and Balonne was gazetted on 12 August 2004. The Plans provide a consistent approach to management across the catchments, while taking the specific issues of each catchment into account.
The WRPs are a package of strategic level rules detailing:

- how water will be shared between consumptive users, the environment and downstream users;
- the conversion of existing entitlements into volumetric tradable water allocations;
- the identification of unallocated water to address critical future water requirements; and
- how to manage the take of overland flow water.

In addition, the Plans provide for monitoring and reporting on achieving the Plan outcomes and for a water trading system to be established.

ROPs have either been finalised or are under development to implement the provisions of the WRPs. The ROPs include rules for:

- converting existing water entitlements to volumetrically specified water allocations;
- trading water allocations;
- sharing of flow events;
- operating water infrastructure;
- releasing unallocated water where identified by water resource plans;
- environmental management; and
- monitoring and assessment programs.

As part of the ongoing planning process, community, water users and stakeholder groups in each catchment have been engaged through consultative groups and individually to work through various issues. These discussions, including supporting technical work, are at various stages in different plan areas.

ROPs for all Queensland Murray-Darling valleys have either been finalised or are expected to be finalised by late 2007.

**Border Rivers**

In the Border Rivers Catchment, an Inter-governmental Agreement (IGA) is being developed jointly with NSW and in consultation with stakeholders. It is intended that implementation of the NSW Water Sharing Plan and the Queensland Resource Operations Plan will be consistent with the development and agreement by all parties on the IGA. The development of the IGA has been broken down to discrete elements, including:

- Sustainable management of water;
- Water sharing and access;
- Water accounting;
- Interstate trading;
- Institutional arrangements;
- Water pricing;
- Measurement and monitoring;
- Auditing and reporting; and
- Schedules.

An interim IGA that addresses the first three elements has been completed and endorsed by the Border Catchments Ministerial Forum. The interim IGA sets out how water will be shared between the states, and its endorsement enables development of the ROP to proceed. The Dumaresq-Barwon-Border Rivers Commission (‘BRC’) and its Working Groups have been working through the detail associated with the interim IGA with stakeholders, mainly via the Inter State Water Management Working Group.

The States will give effect to the IGA through their respective water resource planning processes. Accordingly, in Queensland, the finalised Border Rivers WRP includes provision for the ROP to meet interstate obligations as reflected in the IGA. For example, the final plan provisions include environmental flow objectives including end-of-system flow targets, strategies for achieving plan outcomes, extraction Caps on all water entitlements, dealing with unallocated water, tight control of overland flow extractions, and monitoring and reporting requirements.

The agreed provisions in the IGA relating to joint management of water resources (including, for example, environmental flow rules, water sharing or access rules and water trading and accounting systems) as well as provisions in the final WRP, will be operationalised in Queensland through the Border Rivers ROP.

The Border Rivers WRP is being amended to facilitate inter- and intra-state trading of water entitlements. The amended Plan was released in October 2006 for a consultation period which closed on 12 December 2006.

The changes proposed were for the environmental flow objective at the end of the system to be at least 60.8% of predevelopment flows rather than the 61% previously identified. This is to accommodate the agreed water sharing rules negotiated by Queensland and NSW.
The environmental flow objectives at each node change from minimising flows less than 66% and more than 133% of the predevelopment flow pattern to those specific for each node. The nodes affected include Barwon River at Mungindi, Weir River upstream of the confluence of the Macintyre River and Macintyre River at Kanowna. These proposed changes also result from modelling the impacts of the water sharing rules negotiated by Queensland and New South Wales.

Work is well underway on the ROP for the Border Rivers and Queensland has advised that a draft Plan will be released in early January 2007 with completion by August 2007. The draft Plan has been developed in consultation with stakeholder groups such as the Stanthorpe Community Reference Panel, Border Rivers Food and Fibre and the Interstate Water Management Working Group.

A Cap proposal is expected to be submitted to the Murray-Darling Basin Commission within six months of completion of the ROP.

**Moonie and Warrego, Paroo and Nebine**

ROPs for the Warrego, Paroo, Nebine and Moonie catchments were gazetted on 20 January 2006. The water planning process for those catchments is now complete and the focus is now on its implementation.

Cap proposals for the Warrego, Paroo, Nebine and Moonie valleys were submitted to the MDB in November 2006.

**Condamine and Balonne**

On 12 August 2004, the WRP for the Condamine-Balonne catchment was released. The Plan was finalised after a long period of community consultation and incorporates advice from advisory committees, reference groups, community organisations, irrigators, graziers, members of the local community, industry groups, local councils and government agencies as well as independent scientists.

The Plan seeks to provide a framework for the sustainable management and use of water in the Condamine-Balonne catchment and allocates water to support the social, economic and environmental requirements of the catchment and downstream parts of the catchment.

The Condamine-Balonne WRP makes provisions for:

- Event-based flow management rules to enhance low and medium flow events in the Lower Balonne with benefits for the Narran Lakes and Culgoa floodplain;
- The continuation of the moratorium on new works to take water from a watercourse pending finalisation of the ROP for the catchment;
- The regulation of the take of overland flow water throughout the catchment, ensuring more water for the environment and downstream users;
- Performance indicators to ensure that decisions made under the ROP do not further adversely affect the amount of water available to the environment or existing water users including stock and domestic users; and
- A special five-year report (over and above the normal annual reporting required for Plans) that will enable any significant developments in scientific knowledge relating to the region to be identified and taken into account in reviewing the effectiveness of the plan. For example, the Narran Lakes Research project and the Lower Balonne floodplain study outcomes will provide input to the five-year report.

A ROP is being developed to implement the WRP. Development of the draft ROP has involved considerable consultation with water user and other stakeholder groups within and outside the catchments.

The draft ROP is scheduled for release for public review in early March 2007. Submissions on the draft Plan will be sought from the community. The issues raised in the submissions will then be reviewed by an independent ROP Referral Panel, made up of members from outside the Plan area who will then give advice to the Chief Executive of the Department of Natural Resources and Water.

It is expected that the ROP will be finalised by the end of December 2007.

Cap proposals for the Condamine-Balonne will be submitted to the MDB within six months of completion of the ROP.
Metering

Queensland released a policy on metering water extractions in May 2005 providing a framework for metering across the State. The policy includes metering standards, details of ownership, maintenance and reading of meters, and proposed charging arrangements. In brief, the Department of Natural Resources and Water will organise the supply, installation and maintenance of water meters in accordance with standards provided in the policy. Ownership of water meters will remain with the department with costs associated with metering recovered from water users through an annual metering service charge.

The metering project will see the staged introduction of water metering for all un-supplemented water extractions across Queensland over the coming years. The development of a ROP in each WRP area will generally trigger implementation of metering. As far as possible, metering will be scheduled to be completed in each ROP area at or near the finalisation of the Plan.

To date in the Queensland section of the Murray-Darling Basin metering projects have commenced in the Moonie and Warrego, Paroo and Nebine ROP areas. Approximately 60% of sites within these areas have been metered with the remainder to be metered during the 2006/07 financial year.

The 2006/07 financial year will also see the commencement of metering projects in the Granite Belt section of the Border Rivers and the middle and lower sections of the Condamine-Balonne WRP Area.

4.4.4 IAG Assessment

Diversion of 305 GL in 2005/06 was the third lowest since 1993/94 reflecting variable rainfall in the catchments.

Since no Cap figures have yet been set for Queensland valleys in the Murray-Darling Basin, it is not possible to compare diversions with climate and trade-adjusted Cap targets or the long term Cap.

The Caps cannot be finalised until the planning process is completed. The WRPs for the Border Rivers, Moonie River and Warrego, Paroo, and Nebine catchments became law in December 2003 and for the Condamine-Balonne in August 2004.

Since then work has progressed on developing the ROPs. The status in October 2006 is:

- Border Rivers – draft ROP is expected to be released early in 2007 with completion by August 2007. This follows completion of an interim Inter-governmental Agreement between the Queensland and NSW Governments which provided directions to enable the ROP to progress in Queensland;
- Warrego, Paroo, Nebine and Moonie Catchments – the ROPs were gazetted in January 2006;
- Condamine-Balonne – a draft ROP is expected to be released for public comment in early March 2007 with the ROP expected to be finalised by December 2007.

Queensland has committed to submit Cap proposals to the MDBC for each of the valleys within six months of completion of the relevant ROP. The Cap proposals for the Warrego, Paroo, Nebine and Moonie catchments were submitted in November 2006. Cap submissions for the Border Rivers and Condamine-Balonne are unlikely to be available before February and June 2008 respectively.

Submission of Cap proposals following finalisation of ROPs is not in line with expectations of the Murray-Darling Ministerial Council. Council has previously determined that the Caps for the Queensland Murray-Darling Basin valleys be audited by the IAG prior to incorporation into Schedule F.

Queensland has previously advised Council that this is not possible under the Water Act 2000 where the Chief Executive Officer must undertake his statutory decision-making responsibilities without constraint by external decision-makers, e.g. Council. The original requirement would introduce the risk of legal challenge and possible voiding of the Water Resource Plan. This reduces the role of Council to receiving advice on decisions by Queensland on the Cap. The IAG, however, would still provide independent advice to Council on the Queensland Cap proposals.

The IAG audited the November 2006 Cap submission in February 2007 and provided a separate report to the Commission and Council.
Queensland has agreed that the models underpinning the ROPs will be submitted to the MDBC for technical audit, and if satisfactory, accreditation.

There will be progressive introduction of metering as the ROPs are finalised. Some 1700 sites will be assessed for metering of surface water diversions in Queensland Murray-Darling Basin valleys. A high proportion of these are already metered but will need to be assessed to determine whether they meet the departmental standards.

A strategy and resourcing for monitoring diversions is in place. This will enable relatively accurate measurement other than for overland flow diversions and end-of-valley flows and provide a sound basis for compliance audits.

4.4.5 Conclusions/Recommendations

- Diversions in 2005/06 are estimated at 305 GL, the third lowest since 1993/94;
- Cap figures for Queensland Murray-Darling Basin valleys have not yet been set and as a consequence no comparison between actual use and Cap targets is possible;
- Queensland in developing Resource Operation Plans has agreed that the associated models will be submitted for technical audit and subsequent accreditation by the Murray-Darling Basin Commission;
- Resource Operations Plans for the Warrego, Paroo, Nebine and Moonie catchments were gazetted in January 2006;
- The Resource Operations Plan for the Border Rivers is progressing and will give effect to the Queensland and NSW Inter-governmennt agreement. Queensland advise that the draft Plan will be released for consultation early 2007, and finalised by August 2007. Queensland is amending the Border Rivers Water Resource Plan to facilitate inter and intra state trading of water entitlements;
- Following the establishment of the Lower Balonne Ministerial Water Resources Advisory Council and the Upper and the Middle Condamine ROP Advisory Group, Queensland advised the IAG that a draft Resource Operations Plan for the Condamine-Balonne is expected to be released for public comment in early March 2007 and finalised by December 2007;
- Queensland has committed to submit Cap proposals to the Murray-Darling Basin Commission within six months of finalisation of the Resource Operations Plans. The Cap proposals for the Warrego, Paroo, Nebine and Moonie were submitted in November 2006. These were audited by the IAG in February 2007 and recommended to the Commission;
- There is also an expectation by the Murray-Darling Basin Ministerial Council that Queensland will place a proposal for Cap figures for each valley before Council before finalising the statutory process; and
- A metering program will ensure reliable information on water use is available as the Resource Operation Plans are implemented.
4.5 Australian Capital Territory

4.5.1 The Cap

The ACT became a participant in the Murray-Darling Basin Commission in March 1998. At that time, the ACT Government undertook to participate in the Cap initiative. This commitment to the Cap has been reaffirmed at subsequent Council meetings, most recently at the May 2006 Council meeting when the ACT became a full member of the MDBC. A decision as to what is to be the ACT’s Cap has yet to be made. Net ACT consumption is approximately 0.3% of overall Basin water use.

The major consumptive use of water in the ACT is the urban water supply to Canberra and Queanbeyan. Net diversions since the mid-1980s for urban water supply have been around 31 GL per year with an additional 5 GL per year estimated for all other consumptive diversions (see Table 12).

In 2005/06, as in recent years, net diversion was impacted by water restrictions introduced in response to the drought and the damage caused by the January 2003 bushfires on the catchment areas. During the 2005/06 year, ACT was on Level 1 and Level 2 restrictions (in the first half of 2005/06). The ACT Government has now introduced permanent restrictions as part of a broader policy to conserve water.

The Government’s water strategy is embedded in its Think Water, Act Water statement in which it is proposing a 25% reduction in the per capita consumption of water in the ACT over the next 20 years and a greater use of ‘re-use’ water to replace existing potable water use.

Around 50% of the urban water diversions in the ACT are returned to the Basin by way of the Lower Molonglo Water Quality Control Centre (WQCC) and Queanbeyan Sewage Treatment Works (STW). As a consequence, net diversions are currently used as the accepted means of assessing the use of water for consumptive purposes in the Territory.

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Diversion</th>
<th>Lower Molonglo WQCC</th>
<th>Queanbeyan STW</th>
<th>Other Diversions</th>
<th>Net Diversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989/90</td>
<td>65.4</td>
<td>32.6</td>
<td>3.4</td>
<td>5.0</td>
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<tr>
<td>1990/91</td>
<td>77.3</td>
<td>33.1</td>
<td>3.4</td>
<td>5.0</td>
<td>45.8</td>
</tr>
<tr>
<td>1991/92</td>
<td>60.0</td>
<td>33.3</td>
<td>3.4</td>
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<td>28.4</td>
</tr>
<tr>
<td>1992/93</td>
<td>50.2</td>
<td>34.8</td>
<td>3.4</td>
<td>5.0</td>
<td>17.0</td>
</tr>
<tr>
<td>1993/94</td>
<td>59.4</td>
<td>32.7</td>
<td>3.4</td>
<td>5.0</td>
<td>28.3</td>
</tr>
<tr>
<td>1994/95</td>
<td>60.6</td>
<td>30.1</td>
<td>3.4</td>
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</tr>
<tr>
<td>1995/96</td>
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<td>32.2</td>
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<td>29.0</td>
<td>3.1</td>
<td>5.0</td>
<td>32.0</td>
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</table>
In August 2005, the ACT Government introduced a two-year moratorium on the issuing of new surface and ground water abstraction licences. This is to allow the ACT Government time to examine the impact of the current use of groundwater and the basis on which any future licences should be allocated.

In the first half of 2006, the ACT completed the negotiation of an agreement with the NSW and Federal Governments for the supply of water outside of the Territory. Currently the ACT supplies the water requirements of Queanbeyan, but in recent years, with the expansion of residential areas on the borders surrounding the ACT and water supply shortages in surrounding rural cities such as Goulburn and Yass, there has been a growing debate on the supply of water from the ACT to these locations.

Under the agreement reached between the three governments, the ACT will make available water to these areas in NSW subject to certain conditions, one being that the water provided will be deducted from the NSW Murrumbidgee Cap.

4.5.2 Administration of the Cap

The ACT Water Resources Act 1998 (the Act) contains provision for the licensing and measurement of extractive water use from both groundwater and surface water. The ACT Government has implemented this licensing procedure and undertaken a metering program such that both groundwater and surface water will be metered. The metering program has yet to be finalised particularly for groundwater use. There is also a need to complete a metering program for the other diversions component of the current consumptive use in the ACT and greater attention is being given to this category in the 2006/07 year. Once this is completed it will allow confirmation of the ‘other diversion’ usage reported in Table 12 above. Currently an estimate has been used. The Act also requires that environmental flows must be provided for before any other use. Environmental flow guidelines provide for the protection of flows up to the 80th percentile and, except in water catchments, only 10% of flows over the 80th percentile are available for consumptive use. Of the total ACT water resources of 494 GL per year, these guidelines allocate an average of 272 GL to the environment leaving around 222 GL (gross) notionally available for consumptive use (this is excluding 386 GL of water that flows into the ACT via the Murrumbidgee River and is allowed to pass through the ACT).

Gross consumptive use has only been around 55 to 60 GL per year over recent years, and net use around 31 GL.

4.5.3 Issues with Adoption of the Cap

In December 2002, the ACT Government announced that it would develop a comprehensive Water Resources Strategy to be formalised as a new Water Resources Management Plan under the Water Resources Act. In July 2004, the ACT Government finalised its water strategy, Think Water, Act Water. In this statement, the ACT Government reaffirmed its commitment to the Cap and set out its major aims and objectives in terms of future water use for consumptive and environmental purposes.

The ACT Government has said that it will finalise a Cap once it has achieved full membership of the MDBC. This was formalised in May 2006. More recently, the ACT Government has been seeking legal advice on its rights and obligations regarding water under various pieces of legislation relating to the establishment and continued operation of the ACT.

In terms of the possible quantification of a Cap for the ACT, the ACT Government advised the Murray-Darling Basin Commission as part of the 2002/03 IAG Report that it rejects the use of historical information as the basis for the Cap, and has proposed the adoption of four additional principles to be read in conjunction with the seven principles adopted by the IAG for the purpose of assessing Cap targets. These additional principles are:

- at least broad parity between jurisdictions and towns with equivalent conditions;
- efficiency (that is, the need to reinforce rather than undermine the incentive for responsible action);
- sustainable river environment throughout the Basin over the medium to long-term; and
- recognition of the legal position of the ACT and its legislative arrangements with the Commonwealth and NSW, including existing water rights.

4.5.4 Discussion of Issues

The ACT Government has undertaken a number of studies into issues relating to water, re-use of water, security of supply and groundwater over the last two years. It is anticipated that some
amendments to the ACT Water Resources Act will be introduced in mid-2007 drawing from the findings of these studies. The ACT Government has also undertaken some preliminary assessment of its Think Water Act Water Strategy. The results from this preliminary assessment have been encouraging with early indications showing consumption reductions in line with target projections.

The IAG has discussed the issue of the setting of a Cap for the ACT in previous reports and has also commented on the additional principles proposed by the ACT Government (see IAG 2002/03 Report).

The IAG anticipated that there would be further discussions on the establishment of a Cap for the ACT during 2005/06 but this was delayed pending formalisation of the ACT membership of the MDBC.

The ACT has now advised that they hope to be in a position by mid-2007 to advise a proposed Cap, although they have noted that they will need to consider carefully their legal position (and obligations) under relevant legislation. The IAG notes that the ACT has raised, on a number of occasions, the issue of its “rights to water” and understands the need for an examination of this issue. The IAG also notes that each of the other members of the MDBC has had “rights and obligations” concerning water that originates or flows through their sovereign territory. This has not prevented a Cap being agreed by those other governments that is consistent with Council’s decision to place limits on future diversion for consumptive purposes from the Murray-Darling Basin. As a full member of the MDBC, it must now be expected that the ACT without further delay will finalise its proposal for a Cap so that this can be assessed in the spirit of the cooperative arrangements that guides the MDBC.

The IAG also notes that the ACT has advised that its practice to date has been to allow a flow-through of Murrumbidgee River water. However recently the ACT Government has announced that ACTEW Corporation will be pumping water from the Murrumbidgee to supplement supplies from the Cotter storages and the Googong Dam. Appropriate consideration of this diversion needs to be considered in the setting of the Cap.

4.5.5 Monitoring and Reporting

The ACT has established a system of licences for all users of water in the ACT and these will be climate-adjusted volumetric licences. The ACT will be able to report its consumptive usage against information provided by licence holders. As ACTEW Corporation will be the main licensed user of water from the system, the level of accuracy from this monitoring process should be high. The issuing of licences to groundwater users and finalisation of the current metering program together with the licensing of water catchment infrastructure on small catchments (such as farm dams) will fill any possible gap in the collection of data on water use in the ACT.

4.5.6 2005/06 Diversions

Net diversions by the ACT in 2005/06 were 32 GL. As an example of the assessment that might be made in the future, this diversion has been compared with the level of diversion expected under a 38 GL long-term Cap which was referenced by the IAG in its 1999/00 Report.

The 2005/06 diversion is 4.8 GL below the 36.8 GL annual climate-adjusted Cap target. **Table 13** summarises the ACT’s performance against the 38 GL Cap since July 1997. It reveals that had a Cap of 38 GL been supported, it would have already built up a credit of 62.8 GL.

The IAG notes that it is not saying that the ACT Government should accept a Cap of 38 GL, but rather has used this estimate to highlight the potential accumulation of credits under a Cap of this size.

Table 13: An example of a Cap applied to the ACT – GL’s Diversions since July 1997 compared with a notional 38 GL Cap

<table>
<thead>
<tr>
<th></th>
<th>Notional Long-term Diversion</th>
<th>2004/05 Climate-adjusted Target</th>
<th>Credits (proposed climate-adjusted Cap target less diversion)</th>
<th>2005/06</th>
<th>Cumulative Since 1 July 97</th>
<th>20% Long-term Cap Diversion Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>37</td>
<td>36.8</td>
<td>32</td>
<td>4.8</td>
<td>62.8</td>
<td>-8</td>
</tr>
</tbody>
</table>
4.5.7 Other Issues

In considering the issue of the quantum of the Cap for the ACT, it is worth noting also that any efficiencies achieved by the ACT on water use over the period since 1993/94 should be retained by the ACT in terms of the Cap. As noted by the ACT, and supported by independent CSIRO research, the ACT Government policy initiative embodied in, Think Water Act Water appears to have had a positive impact in terms of reducing per capita consumption in the ACT. These benefits would be retained by the ACT under the model for setting and applying the Cap adopted by the Ministerial Council (and recommended by IAG) in other parts of the Basin. The ACT Government has publicly stated its commitment to reducing the use of water for consumptive purposes (particularly potable water) and has introduced ambitious targets for such reductions, and for the replacement of potable water use by re-use water. The ACT Government has backed this statement of policy objectives with direct incentives and permanent water restrictions to help consumers change their water use behaviour over time. The greater efficiency in water use in the ACT that is derived from the policies and associated direct incentives, will increase the availability of water under the Cap for use in the ACT, potentially for future population growth and for new industries or activities requiring access to water. These outcomes are consistent with the intentions of the Cap and its application in the Basin.

4.5.8 IAG Assessment

The IAG acknowledges the need to give recognition for water efficiencies achieved when determining the Cap for the ACT. The IAG notes that as part of the Think Water Act Water strategy, the ACT Government has set targets for future water savings, viz:

- 25% reduction in per capita consumption of mains (potable) water by 2023;
- increased use of treated waste water (reclaimed water) from 5% to 20% by 2013.

As the nation’s capital, the adoption of a Cap for the ACT has important symbolic ramifications, not only to other parts of the Basin, but to the nation as a whole. Conclusion of negotiation on a Cap should be finalised by October 2007 and a commitment to this date should be obtained from the ACT.

4.5.9 Conclusions/Recommendations

- The ACT has reaffirmed its commitment to establishing a Cap although no Cap presently exists for the ACT;
- Net diversions of 32 GL in 2005/06 are consistent with the average usage between 1989 and 2006 of 31 GL and are also less than a possible climate-adjusted annual Cap target of 36.8 GL. The ACT would have a cumulative credit of 62.8 GL if the Cap of 38 GL notionally used by the IAG had applied since July 1997; and
- The IAG believes the ACT should complete its consideration of the form and size of a Cap to apply to the ACT by early 2007 and finalise agreement on the actual Cap by October 2007.
Murray-Darling Basin diversions in 2005/06 totalled 9119 GL. This was the sixth lowest annual diversion in the period since 1983/84 and was only 70% of the record diversion of 12964 GL in 1996/97. The diversion over the last four years constitute four of the lowest six years of usage in the same 23 year period. Of the total water diverted, New South Wales diverted 55%, Victoria 33%, South Australia 6%, Queensland 3% and the Australian Capital Territory 0.4%. Diversions for the individual valleys are presented in Table 14. Annual diversions since 1983 are plotted in Figures 1 and 2.

### Table 14: Murray-Darling Basin Diversions in 2005/06

<table>
<thead>
<tr>
<th>System</th>
<th>Total Diversion (GL)</th>
<th>Percentage of Basin Diversion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New South Wales</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersecting Streams</td>
<td>3</td>
<td>0.0%</td>
</tr>
<tr>
<td>Border Rivers</td>
<td>151</td>
<td>1.7%</td>
</tr>
<tr>
<td>Gwydir</td>
<td>231</td>
<td>2.5%</td>
</tr>
<tr>
<td>Namoi/Peel</td>
<td>238</td>
<td>2.6%</td>
</tr>
<tr>
<td>Macquarie/Castlereagh/Bogan</td>
<td>210</td>
<td>2.3%</td>
</tr>
<tr>
<td>Barwon-Darling/Lower Darling</td>
<td>199</td>
<td>2.2%</td>
</tr>
<tr>
<td>Lachlan</td>
<td>125</td>
<td>1.4%</td>
</tr>
<tr>
<td>Murrumbidgee</td>
<td>2199</td>
<td>24.1%</td>
</tr>
<tr>
<td>Murray</td>
<td>1631</td>
<td>17.9%</td>
</tr>
<tr>
<td><strong>Total NSW</strong></td>
<td>4987</td>
<td>54.7%</td>
</tr>
<tr>
<td><strong>Victoria</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goulburn/Broken/Loddon cap valley</td>
<td>1548</td>
<td>17.0%</td>
</tr>
<tr>
<td>Campaspe</td>
<td>36</td>
<td>0.4%</td>
</tr>
<tr>
<td>Wimmera-Mallee</td>
<td>75</td>
<td>0.8%</td>
</tr>
<tr>
<td>Murray/Kiewa/Ovens Cap valley</td>
<td>1563</td>
<td>17.1%</td>
</tr>
<tr>
<td><strong>Total Victoria</strong></td>
<td>3222</td>
<td>35.3%</td>
</tr>
<tr>
<td><strong>South Australia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro-Adelaide &amp; Associated Country Areas</td>
<td>74</td>
<td>0.8%</td>
</tr>
<tr>
<td>Lower Murray Swamps</td>
<td>59</td>
<td>0.6%</td>
</tr>
<tr>
<td>Country Towns</td>
<td>40</td>
<td>0.4%</td>
</tr>
<tr>
<td>All other uses of water from the Murray River</td>
<td>401</td>
<td>4.4%</td>
</tr>
<tr>
<td><strong>Total South Australia</strong></td>
<td>573</td>
<td>6.3%</td>
</tr>
<tr>
<td><strong>Queensland</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condamine/Balonne</td>
<td>175</td>
<td>1.9%</td>
</tr>
<tr>
<td>Border Rivers/Macintyre Brook</td>
<td>125</td>
<td>1.4%</td>
</tr>
<tr>
<td>Moonie</td>
<td>2</td>
<td>0.0%</td>
</tr>
<tr>
<td>Nebine</td>
<td>0.09</td>
<td>0.0%</td>
</tr>
<tr>
<td>Warrego</td>
<td>3</td>
<td>0.0%</td>
</tr>
<tr>
<td>Paroo</td>
<td>0.04</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total Queensland</strong></td>
<td>305</td>
<td>3.3%</td>
</tr>
<tr>
<td><strong>Australian Capital Territory</strong></td>
<td>32</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>Total Basin</strong></td>
<td>9119</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Of the 23 years since 1983/84, total Basin diversions in 2005/06 ranked 18; diversions in NSW ranked 20; Victorian diversions ranked 17, SA 15, Queensland 11 and the ACT 12.

Figure 1: Murray-Darling Basin Diversions – 1983/84 to 2005/06

Figure 2: Murray-Darling Basin Diversions – 1983/84 to 2005/06 (Usage under 1000 GL/year)
Appendix 1
Responses by the Five State and Territory Governments

The five State and Territory Governments prepared written responses to the Independent Audit Group’s Report which was presented to the Murray-Darling Basin Ministerial Council in May 2007. The Council agreed to publish these responses as an appendix to the Independent Audit Group’s Report.

General

The IAG again confirmed that diversions for Metropolitan Adelaide and associated country areas, Country Towns, Lower Murray Swamps and All Other Purposes were under Cap in 2005/06.

Diversions were initially constrained at the start of the water year when, for the third consecutive year, South Australia implemented restrictions on River Murray water users. In October 2005 restrictions were lifted authorising all River Murray water users (with the exception of Metropolitan Adelaide) to use 100% of their licensed allocation for the entire year. Metropolitan Adelaide use was restricted to a maximum diversion of 116 GL although actual use for the year was 74 GL including the “First Use Licence”.

South Australia received a total flow of 2310 GL, which was the highest flow since 2000/01 when 6530 GL flowed across the border. Approximately 770 GL was discharged from the Lower Lakes into the Coorong, allowing for a minor freshening of the lakes and for the operation of the fishways at Goolwa and Tauwitchere Barrages.

571 GL was diverted for all purposes within South Australia during 2005/06. The total for irrigation, stock and domestic use was 458 GL (80% of total diversions) which was the lowest diversion of River Murray water since the Cap was introduced. South Australia experienced a wetter winter and spring, so irrigation demands were reduced. An oversupply of grapes also led to a reduction in the volume of water diverted.

River Murray Water Licensing

South Australia remains committed to the Cap process and ensuring that diversions remain under Cap for all four components. Initiatives are being pursued to improve the auditing and reporting capabilities of the Water Information Licensing Management Application (WILMA). These initiatives will assist South Australia to continue to meet its obligations towards sustainable management of the River Murray.

Lower Murray Swamps

The Lower Murray Swamps (LMS) that lie between Wellington and Mannum, require improved management and rehabilitation in order to reduce their environmental impact on the River Murray. A major ‘Options Study’ assessed the environmental sustainability and economic viability of flood-irrigated dairying in these areas. The Study concluded that the best outcome would be the rehabilitation of the most viable parts of the irrigation areas after a period of restructuring combined with a program to implement self-management.

Restructuring and rehabilitation funding assistance was made available to the industry from February 2003. Rehabilitation assistance aims to upgrade the water delivery infrastructure to include metering and to introduce a way of preventing nutrient and bacteria rich irrigation and stormwater runoff returning to the River Murray. The impact of the drought and extensive irrigator consultation delayed the commencement date for on-ground works to the end of 2004.

Since then, significant progress with on-ground rehabilitation engineering works and conversion to self-management has been achieved. It is anticipated that the LMS will be fully metered by July 2007.

Metropolitan Adelaide

South Australia recognises the need to address the issue of growth in demand for Metropolitan Adelaide. The IAG has agreed ‘in principle’ that any trade to Metropolitan Adelaide to account for growth should be dealt with on a separate licence to maintain the integrity of the 5-year rolling Cap for Metropolitan Adelaide until separate arrangements are finalised.
The separate licence is not debited against the 5-year rolling Cap because under the current arrangements trading to this licence is not permitted.

DWLBC and SA Water will progress the development of a model to estimate growth in demand and Metropolitan Adelaide diversions during 2007/08. It is anticipated that a model will be accredited by 30 June 2009. In the interim South Australia will continue to use the “First Use Licence” to account for the growth component in the water supplied to Metropolitan Adelaide.

Schedule F – Proposed changes

At the IAG meeting on 23 October 2006 South Australia indicated that a number of changes to Schedule F would be investigated during 2007/08, including:

- amalgamation of the All Other Purposes and Lower Murray Swamp (irrigation) Caps, including the Environmental Land Management Allocation that would still remain as a non-tradeable allocation;
- calculation of an appropriate exchange rate for interstate trade from the combined irrigation Caps; and
- consideration of the amalgamation of the Country Towns into the combined irrigation Cap.

The proposed changes would not impact on the Cap accounting process, would be more administratively convenient and would make data retrieval from WILMA easier.

River Murray Water Allocation Plan

The Water Allocation Plan for the River Murray (River Murray WAP) provides the legal framework for the allocation, use and transfer of River Murray water in South Australia. The aim of the River Murray WAP is to ensure that the water resource is allocated and managed in a sustainable manner.

The River Murray WAP is in the process of being updated so that it is consistent with:

- the Murray-Darling Basin Agreement;
- the principles in the River Murray Drought Water Allocation Plan;
- changes to interstate and intrastate trade rules;
- the National Water Initiative; and
- The Living Murray.

It is anticipated that the review of River Murray WAP will be completed by 30 June 2008.

Comments on other jurisdictions

South Australia notes that the drought continues to impact on resource availability in the other jurisdictions and remains concerned with the management of the Barwon-Darling and Lower Darling Cap valleys and the continued breach of the Cap. South Australia does not support the current management arrangements and believes the valley will continue to breach the Cap unless different arrangements are considered and reviewed by the Commission and its working groups. South Australia would be supportive of any process to expedite management arrangements to address the issue of over-allocation in this part of the Murray-Darling Basin.

The Queensland and NSW Governments still show slow progress in finalising Cap arrangements, although significant progress has been made with the ROPs for some valleys. It is understood that NSW is waiting on the finalisation of some Caps in Queensland before they can finalise their own Cap arrangements. It is hoped that the Interim Inter-governmental Agreement between NSW and Queensland can be finalised to expedite the completion of the Resource Operating Water Sharing Plans for the Border Rivers region.

South Australia also believes that the ACT should treat the finalisation of its Cap as a priority.

South Australia would be supportive of the Murray-Darling Basin Commission investigating options to fast track the development and implementation of Caps and recognises that the skills shortage is affecting water reform.
Victoria continued implementation of the Cap in 2005/06 through the establishment of Bulk Entitlements on regulated systems and Streamflow Management Plans on unregulated streams. The Bulk Entitlements for the Loddon Basin was granted in November 2005. There has been continued progress on the Birch Creek Bulk Entitlement conversion process.

The White Paper Securing Our Water Our Future identified six high priority unregulated rivers in northern Victoria. Technical studies required for the development of Stream Flow Management Plans (SFMPs) for these streams, such as environmental flow studies and development of hydrological models, are being undertaken. The results of these studies will be used by consultative committees responsible for the development of the SFMPs.

Diversions since July 1997 from each of Victoria’s four designated valleys continue to comply with the Cap. Diversions from the Murray/Kiewa/Ovens and Campaspe valleys were below their Cap targets in 2005/06 and diversions from the Goulburn/Broken/Loddon valley were marginally above target. Cumulative diversions since July 1997 remain in credit in all valleys.

The level of diversion from the Wimmera-Mallee system has remained below Cap due to the significant water savings from the Northern Mallee Pipeline. A portion of these savings has been allocated to the environment.

The climate-adjusted model covering the Goulburn/Broken/Loddon and Campaspe valleys has been submitted to the model auditor for accreditation and is expected to gain accreditation in 2007. Development of a Cap compliance methodology for the reduced Wimmera-Mallee Cap is progressing slowly due to the extreme drought. A Cap model is expected to be available by October 2007 which will form the basis of a submission to the MDBC.

Victoria relies on the MDBC model of the Murray system to provide Cap targets for the Murray system. Re-calibration of the Murray Cap model is almost complete and it is expected to go to the independent auditor by March 2007.

Victoria will continue to provide accurate and timely water audit information as required. Victoria agrees with the IAG conclusions and supports their recommendations regarding the finalisation of the ACT, Border Rivers in New South Wales and Queensland Caps. However, the timelines for accreditation of Cap models recommended by the IAG may not be met due to the extra workload caused by the current drought.
NSW remains committed to the Cap process and, in particular, to ensuring that long-term diversions are maintained within the Murray-Darling Basin Ministerial Council’s Cap.

Since 2004 NSW has reported that its water management strategies would deliver, on average, an extra 200 GL (approximately) per year back to the rivers. NSW is pleased to report that, after nine years operation of the Cap initiative, it is currently some 2842 GL below Cap, an average of 315 GL per year. Furthermore, NSW has for some time explained that its environmental flow rules would generate large credits during the dryer sequences which may be used to offset higher use in wet sequences. It is worthy of note that some 859 GL of Cap credits were generated this season as predicted.

The report indicates that diversions in all NSW valleys are currently within Cap, with the exception of the NSW Border Rivers, where a Cap is currently being formalised, and the Barwon-Darling valley. NSW has commenced implementation of a new licensing framework in the Barwon-Darling valley that is restructuring entitlements to water in the form of an average annual use that accords with the long-term Cap. This will ensure that future diversions cannot exceed Cap over the long term. Implementation of the new licensing arrangements is almost complete, and the new arrangements will take effect in 2007/08.

NSW continues to make significant progress towards accreditation of valley models under Schedule F for Cap auditing, with both the Lachlan and Namoi valley models now accredited by the independent auditor. NSW has also presented the Gwydir, Macquarie and Peel (a sub-catchment of the Namoi) Valley Cap models to the independent auditor for accreditation. The remaining NSW Cap models for the Murrumbidgee, Barwon-Darling and NSW Border Rivers are expected to be submitted for accreditation within the timeframes recommended by the IAG.

NSW recognises the importance of responsibly managing the catchment water cycle and supports the IAG’s view that this is essential to complement the Cap through investigation of the other water extraction activities that might impact on the flows through the Basin. NSW is keen to participate in these investigations on a priority basis. NSW actively participates in the MDBC-sponsored investigations under the guidance of the National Water Initiative.
In line with the Council’s earlier decisions, the Queensland Cap is to be established in accordance with the provisions of Schedule F following the completion of the water resource planning processes. Compliance and auditing will be in accordance with the provisions of Schedule F.

Queensland has now finalised WRPs in all its Murray-Darling Basin valleys which provide for the capping of diversions from watercourses, lakes, springs and overland flows. Water Resource Plans for the Border Rivers, Moonie, Nebine, Warrego and Paroo valleys were gazetted as subordinate legislation on 5 December 2003 and the final plan for the Condamine-Balonne was gazetted on 12 August 2004.

A moratorium on new works has existed in all Queensland Murray-Darling valleys since 20 September 2000. The Water Resource Plans continue the moratorium on the development of infrastructure related to water-harvesting licences until the Resource Operations Plans are finalised. The Water Resource Plans also continued the moratorium on works that would increase the take of overland flow. Works that allow the taking of overland flow water are managed as assessable developments under the Integrated Planning Act and any growth in take by those works is prohibited under the Water Resource Plans. When implemented, the management rules under the Resource Operations Plans will ensure that there will be no increase in the average volume of water available to be taken.

Resource Operations Plans are developed to implement the provisions of the Water Resource Plans. Diversion caps for Queensland valleys are developed and implemented as part of the monitoring, auditing and reporting provisions of the Resource Operations Plans. Resource Operations Plans for the Moonie, Warrego, Bulloo and Nebine valleys have been finalised and those for the Condamine and Balonne and Border Rivers are expected to be completed in 2007.

In the Border Rivers Catchment, an Inter-governmental Agreement (IGA) is being developed jointly with NSW and in consultation with stakeholders. It is intended that implementation of the NSW Water Sharing Plan and the Queensland Resource Operations Plan will be consistent with the IGA. An interim IGA that addresses the Sustainable Management of Water, Water Sharing and Access, Water Accounting has been completed and endorsed by the Border Catchments Ministerial Forum. The remaining issues (Interstate Trading, Institutional Arrangements, Water Pricing, Measurement and Monitoring, Auditing and Reporting, Schedules) will be progressively addressed over the coming months.

The Border Rivers WRP is being amended to facilitate inter-and intra-state trading of water entitlements. The amended Plan was released on 30 October 2006 for a period of public consultation which finishes on 12 December 2006.

Queensland has submitted Cap proposals to the MDB for the Warrego, Paroo, Nebine and Moonie catchments and expects to submit proposals for the Condamine and Balonne and Border Rivers within six months of completion of the relevant ROPs. It is expected that these will be available by February 2008 and June 2008 respectively. The Murray-Darling Basin Ministerial Council has previously determined that the Caps for the Queensland Murray-Darling Basin valleys be audited by the IAG prior to incorporation into Schedule F. Queensland fully supports this approach.

As a result of high seasonal variability and their relatively uncontrolled nature, diversions from Queensland Murray-Darling Basin valleys vary considerably from year to year. This is a result of high seasonal variability and the relatively small number of supplemented schemes compared to private development based on unsupplemented flows. Due to the dry conditions experienced and the low availability of water, total diversions in 2005/06 were 305 GL which was the third lowest take since 1993/94.
Water Use

Although the ACT gross diversion for 2005/06 increased from the two previous years to 59.1 GL, consumptive use in the ACT was below average. The volume of net diversions of 32 GL which was also higher than the previous two years is consistent with the average of net diversions. This was mainly the result of the move to stage 1 of the temporary water restrictions scheme following good rainfall in the Spring of 2005.

Permanent water conservation measures were implemented by legislation on 31 March 2006 as a set of measures to ensure more efficient use of water in the Territory. They are similar to schemes implemented in other cities and regions of Australia. The complementary temporary water restrictions scheme has been modified and comes into force as storages levels and other factors including weather change. The temporary water restrictions scheme did not apply in the period from 31 March 2006 to 30 June 2006. The permanent water conservation measures are expected to reduce gross diversion over time.

Cap

Now that the ACT is a member of the Murray-Darling Basin Ministerial Council there will be an acceleration in the development of an ACT Cap. It is anticipated that an ACT position will be developed during 2007. In developing its Cap the ACT is clarifying its legal position with respect to the control and responsibility over water resources within the Territory and Googong Dam.

The ACT continues to apply sound environmental and resource management practices including guaranteed environmental flows that protect river health. The environmental flow regime was reviewed and amended in 2005/06. The revised regime ensures the incorporation of best practice standards and most current science. The resultant consumptive pool is far greater than the ACT’s gross diversion and the volume of water able to be diverted from its water basins as provided in the National Capital Plan.

The ACT Government is committed to the implementation of an environmentally and economically sustainable Cap for the long-term security of the ACT.
**Glossary**

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTEW</td>
<td>ACT Electricity and Water Corporation.</td>
</tr>
<tr>
<td>announced allocation</td>
<td>The percentage of water entitlement declared available for diversion from a regulated stream in a season.</td>
</tr>
<tr>
<td>annual allocation</td>
<td>The annual volume of water available for diversion from a regulated stream by an entitlement holder.</td>
</tr>
<tr>
<td>authorised use</td>
<td>Total of the water allocated in the valley plus off-allocation and water-harvesting use plus unregulated stream use not in allocation and system losses not in allocation.</td>
</tr>
<tr>
<td>Border Rivers</td>
<td>The rivers and tributaries forming, or intersecting the border between NSW and Queensland.</td>
</tr>
<tr>
<td>Bulk Entitlement</td>
<td>A perpetual entitlement to water granted to water authorities by the Crown of Victoria under the Water Act 1989.</td>
</tr>
<tr>
<td>carryover</td>
<td>An unused entitlement from one season that can be used in the next year.</td>
</tr>
<tr>
<td>channel capacity</td>
<td>The maximum rate at which water can be delivered through a river reach or an artificial channel.</td>
</tr>
<tr>
<td>COAG</td>
<td>Council of Australian Governments.</td>
</tr>
<tr>
<td>diversion</td>
<td>The movement of water from a river system by means of pumping or gravity channels.</td>
</tr>
<tr>
<td>diversion licence</td>
<td>Specified licences issued for a specified annual volume and diversion rate.</td>
</tr>
<tr>
<td>DNR</td>
<td>The Department of Natural Resources (of NSW).</td>
</tr>
<tr>
<td>DNRMW</td>
<td>The Department of Natural Resources Mines and Water (of Queensland).</td>
</tr>
<tr>
<td>DSE</td>
<td>The Department of Sustainability and Environment (of Victoria)</td>
</tr>
<tr>
<td>dozer allocation</td>
<td>An allocation that is not fully utilised.</td>
</tr>
<tr>
<td>DWLBC</td>
<td>The Department for Water, Land and Biodiversity Conservation (of South Australia).</td>
</tr>
<tr>
<td>EC (unit)</td>
<td>Electrical conductivity unit 1 EC = 1 micro-Siemens per centimetre measurement at 25°C Celsius. Commonly used to indicate the salinity of water.</td>
</tr>
<tr>
<td>end-of-valley flows</td>
<td>The flow regime at the end of a valley.</td>
</tr>
<tr>
<td>floodplain harvesting</td>
<td>The diversion of water from a floodplain into storage(s).</td>
</tr>
<tr>
<td>FMIT</td>
<td>First Mildura Irrigation Trust.</td>
</tr>
<tr>
<td>gigalitre (GL)</td>
<td>One thousand million or 109 litres.</td>
</tr>
<tr>
<td>GL</td>
<td>Gigalitre: one thousand million or 109 litres.</td>
</tr>
<tr>
<td>G-MW</td>
<td>Goulburn-Murray Water (of Victoria).</td>
</tr>
<tr>
<td>gravity districts</td>
<td>Districts which use gravity to divert the flow of water from the river.</td>
</tr>
<tr>
<td>high security entitlement</td>
<td>An entitlement which does not vary from year to year and is expected to be available in all but the worst droughts.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IAG</td>
<td>Independent Audit Group.</td>
</tr>
<tr>
<td>impoundment</td>
<td>The storage of water diverted from a watercourse.</td>
</tr>
<tr>
<td>irrigation</td>
<td>Supplying land or crops with water by means of streams, channels or pipes.</td>
</tr>
<tr>
<td>LV</td>
<td>Licence Volume.</td>
</tr>
<tr>
<td>MDBC</td>
<td>Murray-Darling Basin Commission.</td>
</tr>
<tr>
<td>MDBMC</td>
<td>Murray-Darling Basin Ministerial Council.</td>
</tr>
<tr>
<td>megalitre (ML)</td>
<td>One million litres. One megalitre is approximately the volume of an Olympic swimming pool.</td>
</tr>
<tr>
<td>Ministerial Council, the</td>
<td>Murray-Darling Basin Ministerial Council.</td>
</tr>
<tr>
<td>ML</td>
<td>Megalitre: one million litres. One megalitre is approximately the volume of an Olympic swimming pool.</td>
</tr>
<tr>
<td>Murray-Darling Basin Agreement</td>
<td>The Agreement between the Governments of the four Basin States and the Commonwealth. The current Agreement is the 1992 Agreement.</td>
</tr>
<tr>
<td>off-allocation</td>
<td>When unregulated tributary inflows or spills are sufficient to supply irrigation needs and downstream obligations.</td>
</tr>
<tr>
<td>on-farm storage</td>
<td>Privately owned storages used to harvest surplus flows or to store unused allocations for use in the following season.</td>
</tr>
<tr>
<td>overdraw</td>
<td>Water diverted in one season against a prospective allocation in the subsequent year.</td>
</tr>
<tr>
<td>overland flow</td>
<td>Water that runs off the land following rainfall, before it enters a watercourse and floodwater that erupts from a watercourse or lake onto a floodplain.</td>
</tr>
<tr>
<td>permanent transfer</td>
<td>The transfer of water entitlements on a permanent basis. The right to permanent transfers allows irrigators to make long-term adjustments to their enterprise and enables new operators to enter the industry.</td>
</tr>
<tr>
<td>private diverters</td>
<td>Licensed to operate privately owned pumps or diversion channels; includes river pumpers and diverters as well as town water supplies.</td>
</tr>
<tr>
<td>property right</td>
<td>In this context, the right to ownership of allocated volumes of water.</td>
</tr>
<tr>
<td>RAMSAR wetland</td>
<td>A wetland listed on the Register of internationally significant wetlands established by the Convention at Ramsar.</td>
</tr>
<tr>
<td>regulated streams/</td>
<td>Streams where users are supplied by releases from a storage. A water licence for a regulated stream specifies a base water entitlement defining the licence holder’s share of the resources from a stream.</td>
</tr>
<tr>
<td>waterways</td>
<td></td>
</tr>
<tr>
<td>riparian</td>
<td>Of, inhabiting or situated on the bank and floodplain of a river.</td>
</tr>
<tr>
<td>RIT</td>
<td>Renmark Irrigation Trust.</td>
</tr>
<tr>
<td>ROP</td>
<td>Resource Operation Plan.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>sales water</td>
<td>In Victoria, water that may be purchased by an irrigator in addition to the basic water right. Access to sales water is announced each season as a percentage of Water Right depending on the available resource.</td>
</tr>
<tr>
<td>salinity</td>
<td>The concentration of dissolved salts in groundwater or river water usually expressed in EC units.</td>
</tr>
<tr>
<td>sleeper allocation</td>
<td>An allocation that does not have a history of water usage.</td>
</tr>
<tr>
<td>temporary transfer</td>
<td>Water entitlements transferred on an annual basis.</td>
</tr>
<tr>
<td>unregulated streams</td>
<td>Streams that are not controlled or regulated by releases from major storages.</td>
</tr>
<tr>
<td>utilisation</td>
<td>The amount of water available for diversion that is actually diverted.</td>
</tr>
<tr>
<td>water entitlement</td>
<td>The legal right of a user to access a specified amount of water in a given period.</td>
</tr>
<tr>
<td>water-harvesting</td>
<td>The diversion of water from an unregulated stream in Queensland in which the access to water is defined only by a diversion rate and a starting flow in the stream.</td>
</tr>
<tr>
<td>WAMP</td>
<td>Water Allocation and Management Planning. It is a process formerly under way in Queensland to enable the acceptable level of allocatable water to be determined for a river system. These plans have been superseded by Water Resource Plans.</td>
</tr>
<tr>
<td>WMRWG</td>
<td>Water Market Reform Working Group.</td>
</tr>
<tr>
<td>WR</td>
<td>Water Right.</td>
</tr>
<tr>
<td>WSP</td>
<td>Water Sharing Plan. Plans developed under the New South Wales Water Management Act, 2000 for equitable sharing and management of NSW water resources.</td>
</tr>
<tr>
<td>WUE</td>
<td>Water Use Efficiency.</td>
</tr>
</tbody>
</table>
Annexure A

Special Audit
NSW Barwon-
Darling/Lower
Darling Cap Valley

Report of the
Independent Audit
Group

Independent Audit Group Members

Dr Wally Cox (Chair)
Paul Baxter
Denis Flett

M A R C H  2 0 0 7
Introduction

Based upon the determination of a Special Audit of the NSW’s combined Barwon-Darling Lower Darling Cap valley in May 2005, the Murray-Darling Basin Commission (MDBC) declared the valley in breach of the Cap. The 2004/05 Review of Cap Implementation by the Independent Audit Group (IAG) identified that diversions for the combined Barwon-Darling/ Lower Darling Cap valley were cumulatively 154 GL above the Cap, and above the combined trigger for Special Auditing of 62 GL. This prompted the MDBC under Clause 14 of Schedule F to ask the IAG to undertake a Special Cap Audit of the combined Barwon-Darling Lower Darling Cap valley. This was undertaken in early 2006, and a report issued in February 2006.

Subsequently the 2005/06 Review of Cap Implementation by the IAG identified that diversions for the combined Barwon-Darling/ Lower Darling Cap valley are at 143 GL above the Cap and above the combined trigger for Special Auditing of 62 GL. Again, this has prompted the MDBC under Clause 14 of Schedule F to ask the IAG to undertake a Special Cap Audit of the combined Barwon-Darling Lower Darling Cap valley.

This report is the report of the IAG on the Special Cap Audit of the NSW’s combined Barwon-Darling/Lower Darling valley Cap conducted as per the provisions of Clause 15 of Schedule F.

Audit Process

The IAG has adopted a similar audit process to that used in previous years. Initially it has considered the detailed report on usage, infrastructure developments, climate, and land use submitted by the NSW Department of Natural Resources (DNR) provided as part of the 2005/06 Audit (October 2006 Report), the 2003/04 and 2004/05 Audits, and the May 2005 and February 2006 Special Audits of the NSW Barwon Darling and Lower Darling Valleys. In response to the requirement for a Special Audit after the 2005/06 Cap review, the IAG received a letter from DNR (attached) advising that there is little additional factual information available beyond that already provided to the IAG as part of these earlier reviews and recommending that the Special Audit be conducted on the basis of the last submission by NSW. Based upon this advice, the IAG considered the existing information when conducting the Special Audit and made its determination contained in this report. A draft report was made available to the DNR for comment prior to finalisation of the report.

Audit Outcome

DNR has advised that survey estimates of irrigated areas and irrigation infrastructure all indicate significant increases over the 1993/94 levels in the Barwon-Darling Valley. This in turn results in users in the Barwon-Darling River system continuing to exceed climatically-adjusted Cap targets. For the Lower Darling Valley, there does not appear to have been any significant increase in infrastructure, with most of the on-farm storage capacity located on the Tandou property in the form of a natural lake.

The Barwon-Darling Valley receives only unregulated flow from other valleys, and all supply is essentially opportunistic. The Lower Darling is a regulated system supplied from the Menindee Lakes. The growth in storage capacity on the Barwon-Darling has increased the ability of irrigators to capture flows when these occur, although over the more recent seasons the areas irrigated have been significantly reduced by the lack of water flows from which storage can be filled.

NSW has recognised and acknowledged that it is in breach of the Cap. In its submission to the IAG as part of the 2005/06 Audit, DNR advised that in response to earlier declarations of breach of the Cap, it has announced and is implementing a new Cap strategy for the Barwon-Darling along similar lines to that applied in other unregulated streams in NSW. This strategy involves restructuring the water entitlements to ensure that future diversions do not exceed the long-term Cap. Under the proposed strategy, the irrigators’ licences will be credited annually with a total volume equivalent to the long-term average Cap (assessed as 173 GL) and they will operate under continuous accounting. Under this arrangement, DNR argues that the long-term total average extractions (account debits) cannot exceed the long-term Cap, as account debits cannot exceed account credits.

Having announced this program in March 2006, NSW has commenced implementation of the new arrangements, involving:

- Completion of a review of historical diversions for all users which will form the basis for converting existing entitlements to shares in the long-term Cap for the valley;
- Conducting an ‘Extraction Confirmation and Anomalies Assessment Process’ to address any disputation over the historical use information; and
- Conducting an independent review of the long-term hydrological model for the valley.
The new Cap arrangements will commence in 2007/08.

These new arrangements will also be included in a Water Sharing Plan for the Barwon-Darling valley, which will contain event-based access rules that will protect important flows for the environment and downstream users.

For the Lower Darling, NSW advised that on 1 July 2004, a Water Sharing plan for the Murray and Lower Darling valleys commenced, which included limits on supplementary water access (previously known as off-allocation access). The Lower Darling is acknowledged to be cumulative below the Cap.

The IQQM modelling for the Barwon-Darling still has to be submitted for accreditation, and this is expected to occur once the new licensing arrangements are settled and the shares of available water are determined.

Comments

The IAG has reviewed the material provided by DNR and confirms that there has been a continuation of breach of the Cap in the combined Barwon-Darling/Lower Darling valley Cap. The IAG has previously identified the growth in development works and irrigated areas in the Barwon-Darling Valley as the prime reason for this breach of the Cap. Nothing has come to the attention of the IAG to cause it to reconsider this assessment. Under NSW’s own assessment, it is accepted that there is a breach of the Cap.

The IAG notes that it had originally identified a breach in 1998/99. Subsequently there have been repeated commitments made about action to be taken to address this problem. Most recently, the NSW Government has reaffirmed its commitment to implementing an effective Cap for the Barwon-Darling Valley, and following announcements made in March 2006, is now moving towards finalising the implementation of amended licence entitlements which it is argued will result in Cap compliance.

Acknowledgement by NSW of the Cap breaches and the need for corrective action, together with the findings of repeated Cap breaches by successive Special Audits, highlights the urgency for appropriate corrective policies to be implemented and acted upon, and in particular for the new licensing arrangements to be implemented.

Conclusion

On the basis of available information the IAG determines that the combined Barwon-Darling/Lower Darling Cap valley continues to be in breach of the long-term diversion Cap. The IAG notes that NSW has commenced a program to introduce new licensing arrangements for the Barwon-Darling that it is claimed will ensure that the average long-term Cap is not exceeded over time.
Attachment A

NSW Government
DEPARTMENT OF NATURAL RESOURCES

Mr Wally Cox
An Awadhesh Prasad
Murray-Darling Basin Commission
GPO Box 403
CANBERRA ACT 2601

20 MAR 2007

Dear Mr Cox,

I refer to the Commission's directive to the IAG to conduct a Special Audit of the combined Barwon-Darling and Lower Darling valley, following the 2005-06 review of Cap implementation.

The IAG have previously performed two Special Audits on the combined Barwon-Darling and Lower Darling, and there is little factual information that can be provided in addition to that already provided for the past Special Audits. Consequently, I am recommending that the current Special Audit be performed on the basis of the last submission that NSW provided to the IAG in January 2006 and, prior to that, in June 2005.

As part of the previous Special Audits, NSW outlined a restructuring of licensed water entitlements in the Barwon-Darling Valley that will ensure diversions will remain within Cap. The IAG's Special Audit reports in 2005 and 2006 supported the proposed actions, and NSW remains committed to this approach.

Minister Macdonald has reaffirmed NSW's commitment to implementing an effective Cap for the Barwon-Darling valley. The principle underpinning the new cap strategy is that each licence water allocation account will be credited every year with its volumetric share of the average valley Cap, as defined by long term modelling. The current estimate of the average Cap is 173 GL per year. Thus each year this volume will be shared amongst all licences. This will ensure Cap compliance as licence extractions will be limited to the Cap.

Apart from Cap compliance this methodology will also address the issue of over-allocation. There are currently issued entitlements with a face value of about 524 GL, under the new strategy these will be converted to 173 GL of entitlements, ensuring that the face value of the entitlement reflects the volume that is available to the licence.

Licence holders have already been notified of their proposed volumetric Cap shares. The detailed arrangements regarding the distribution of Cap shares between users are still being finalised, and I expect that these will be resolved in the near future and the current licences issued under the NSW Water Act will be immediately amended.

A Water Sharing Plan for the Barwon-Darling is being developed, and is expected to be implemented during 2008.

Should you have any further enquiries about this matter, I have arranged for Mr Kim Alvarez, General Manager, Rural Water Reform and Innovation, to assist you. Kim may be contacted at the Department's Parramatta Office on telephone number (02) 9865 6983.

Yours sincerely,

RICHARD SHELDRACKE
DIRECTOR GENERAL

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Phone 02 9865 6211 Fax 02 9865 7785 Website naturalresources.nsw.gov.au