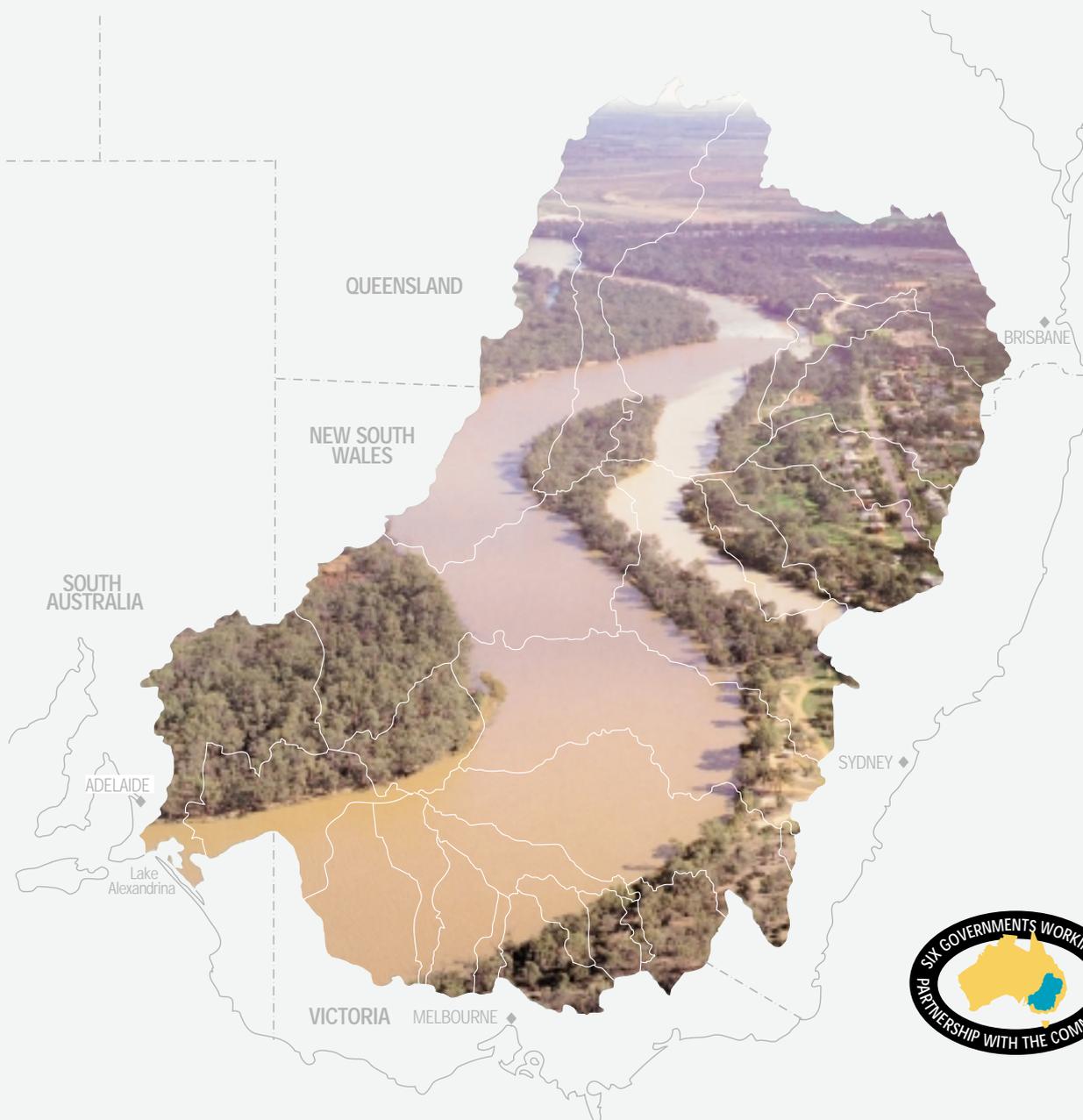




# *Review of the Operation of the Cap*

## **Overview Report of the Murray-Darling Basin Commission**



# *Review of the Operation of the Cap*

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## ***Overview Report of the Murray-Darling Basin Commission***

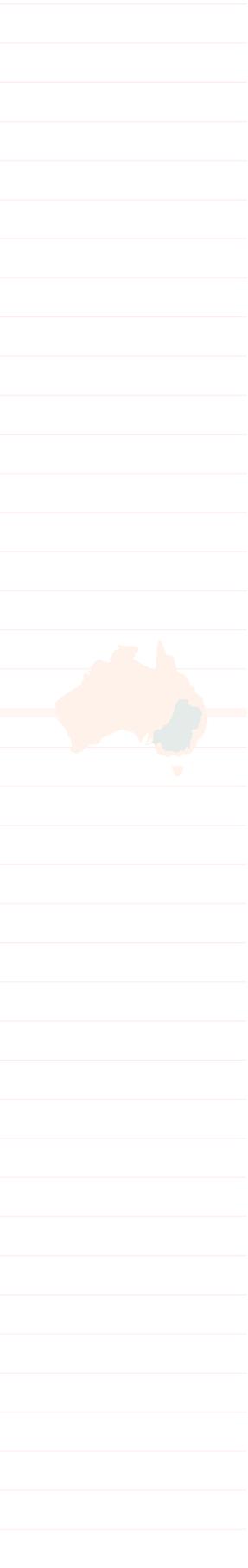
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**AUGUST 2000**

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# **Foreword**

I am pleased to present to the Ministerial Council the final report on the Review of the Operation of the Cap by the Murray-Darling Basin Commission.

At Council's direction, the Commission has performed this major review of the Cap's operation, and not the Cap itself, after five years of implementation. The Review has been conducted in four components to ensure all aspects of the Cap's operation have been addressed. The four components were:

- Ecological Sustainability of Rivers;
- Economic and Social Impacts;
- Equity; and
- Implementation and Compliance.

The design, carriage and execution of the Review have been the responsibility of the Murray-Darling Basin Commission through the Cap Project Board. The members of the Cap Project Board were:

- Commissioner Bernard Wonder (Chair);
- Commissioner Scott Spencer;
- Deputy Commissioner David Leece; and
- Deputy Commissioner Campbell Fitzpatrick.

The Commission considered the Review of the Operation of the Cap at Meeting 55 – 18 July 2000 in Goondiwindi, Queensland, and agreed to provide this final report to the Council at its meeting on 25 August 2000.

The Commission appreciates the Council's commitment to the Cap, and its awareness of the need for a comprehensive review to address any matters that may not have been resolved in the initial phase of implementation.

The Murray-Darling Basin Commission acknowledges the cooperation of State and Territory Government agencies and the submissions made to the Review in November 1999 and July 2000 by:

- the partner Governments to the *Murray-Darling Basin Agreement* (Commonwealth, NSW, VIC, SA, QLD and the ACT);
- the Community Advisory Committee of the Murray-Darling Basin Ministerial Council (CAC);
- other stakeholders throughout the Basin; and
- the Office of the Murray-Darling Basin Commission.

I commend the final report of the Review of the Operation of the Cap to Council. I hope this report serves Council well in its future deliberations on the operation of the Cap.

Roy Green  
President  
Murray-Darling Basin Commission  
August 2000





# **Contents**

<b>Foreword</b>	<b>iii</b>
<b>Executive Summary</b>	<b>1</b>
<b>1. Introduction</b>	<b>7</b>
<b>1.1 The Cap on Diversions in the Murray-Darling Basin</b>	<b>7</b>
1.1.1 Background	7
1.1.2 The Audit of Water Use in the Murray-Darling Basin	7
1.1.3 The Decision to Cap Diversions	9
1.1.4 Significance of the Decision to Cap Diversions	9
<b>1.2 The Review of the Operation of the Cap</b>	<b>10</b>
1.2.1 The Review	10
1.2.2 Advice Sought by the Cap Project Board	10
1.2.3 Submissions to the Review – November 1999	11
1.2.4 Draft Overview of the Cap Project Board – March 2000	11
<b>2. Ecological Sustainability of Rivers</b>	<b>13</b>
<b>2.1 Introduction</b>	<b>13</b>
<b>2.2 Summary of Submissions on Draft Overview Report</b>	<b>13</b>
<b>2.3 The Ecological Sustainability of the Basins' Rivers</b>	<b>13</b>
<b>2.4 Component Summary</b>	<b>16</b>
<b>3. Economic and Social Impacts</b>	<b>17</b>
<b>3.1 Introduction</b>	<b>17</b>
<b>3.2 Summary of Submissions on Draft Overview Report</b>	<b>17</b>
<b>3.3 The Economic and Social Impacts of the Cap</b>	<b>17</b>
3.3.1 General	17
3.3.2 Benefits and Costs to the Agricultural Economy	18
3.3.3 Benefits and Costs to the Non-Agricultural Economy	21
<b>3.4 Component Summary</b>	<b>21</b>
<b>4. Equity</b>	<b>23</b>
<b>4.1 Introduction</b>	<b>23</b>
<b>4.2 Summary of Submissions on Draft Overview Report</b>	<b>23</b>
<b>4.3 Pre-Existing Equity Issues</b>	<b>24</b>
<b>4.4 Newly Identified Equity Issues</b>	<b>25</b>
<b>4.5 Equity Issues Outside the Jurisdiction of the MDBC</b>	<b>27</b>
<b>4.6 Component Summary</b>	<b>27</b>

# Contents

<b>5. Implementation and Compliance</b>	<b>29</b>
5.1 Introduction	29
5.2 Summary of Submissions on Draft Overview Report	29
5.3 Implementation	30
5.4 Compliance at a Jurisdictional Level	31
5.5 Component Summary	31
<hr/>	
<b>6. Schedule F – Cap on Diversions</b>	<b>33</b>
6.1 Introduction	33
6.2 Removal of References to End-of-Valley Flows	33
6.3 Remedial Actions in Case of Cap Exceedance	34
6.4 Commencement Date for Accounting for Diversions Under the Cap	34
6.5 Summary	35
<hr/>	
<b>7. The Sustainable Rivers Audit – The “Next Step”</b>	<b>37</b>
7.1 Introduction	37
7.2 Summary of Submissions on Draft Overview Report	37
7.3 A Sustainable Rivers Audit of the Murray-Darling Basin	37
7.4 Summary	37
<hr/>	
<b>APPENDIX A – Definition of the Cap in Each Jurisdiction</b>	<b>39</b>
<b>APPENDIX B – Terms of Reference for the Review</b>	<b>40</b>
<b>APPENDIX C – Submissions to the Review November 1999</b>	<b>41</b>
<b>APPENDIX D – Submissions to the Review on the Draft Overview Report July 2000</b>	<b>42</b>
<b>APPENDIX E – Schedule F – Cap on Diversions</b>	<b>45</b>

The following four Companion Papers, one for each component of the Review of the Operation of the Cap, are also available:

- **Companion Paper 1 – Ecological Sustainability of Rivers**  
Review of the Operation of the Cap – Ecological Sustainability of Rivers  
Report of the CRC for Freshwater Ecology – February 2000
- **Companion Paper 2 – Economic and Social Impacts**  
Review of the Operation of the Cap – Economic and Social Impacts  
Report of Marsden Jacob Associates – March 2000
- **Companion Paper 3 – Equity**  
Review of the Operation of the Cap – Equity  
Report of the Independent Audit Group – February 2000
- **Companion Paper 4 – Implementation and Compliance**  
Review of the Operation of the Cap – Implementation and Compliance  
Report of the Independent Audit Group – February 2000

# **Executive Summary**

## ***The Cap on Diversions in the Murray-Darling Basin***

In response to declining river health coupled with the incremental erosion of security of supply for existing irrigators, the Murray-Darling Basin Ministerial Council at its June 1995 meeting decided to introduce a Cap on the diversion of water from the Basin's river system.

The introduction of the Cap was seen as an essential first step in establishing management systems to achieve healthy rivers and sustainable consumptive uses. In other words, the Ministerial Council determined that a balance needed to be struck between the significant economic and social benefits that have been obtained from the development of the Basin's water resources on the one hand, and the environmental uses of water in the rivers on the other.

The Cap is a key policy decision in support of the goal of the *Murray-Darling Basin Initiative* which is

***to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin.***

As such, the Cap is not an end in itself, but rather a first step towards achieving the longer-term objective of the *Initiative*. Striking the correct balance in the Murray-Darling Basin is, and will continue to be, an ongoing process.

## ***The Review of the Operation of the Cap***

As part of the decision by the Ministerial Council to introduce a permanent Basin-wide Cap on diversions, a major Review of the Operation of the Cap was scheduled for 2000 which marks five years of Cap implementation.

The decision of the Ministerial Council to commission a review reflects their commitment to the Cap. It also indicates an awareness of Council that a major policy initiative such as the Cap cannot be implemented without a comprehensive review. This Review steps back from the detailed annual audits of Cap implementation conducted by the Independent Audit Group (IAG) and looks to identify and address any matters that may not have been resolved in the initial phase of implementation.

This document is the final report (August 2000) of the Murray-Darling Basin Commission on the Review of the Operation of the Cap to the Murray-Darling Basin Ministerial Council.

This report provides a collation of the work specifically commissioned through two consultancies and the IAG designed to inform the Review process. This work has considered the submissions made to the Review in both November 1999 and July 2000 from the partner Governments, the Community Advisory Committee (CAC), and other interested stakeholders.

## ***Ecological Sustainability of Rivers***

The Commission has concluded that the Cap has been an essential first step in providing for the environmental sustainability of the river system of the Basin. Without the Cap, there would have been a significantly increased risk that the environmental degradation of the river system of the Murray-Darling Basin would have been worse. While there are aspects of the operation of the Cap where potential for improvement has been identified, the Cap has had a positive impact and should be maintained.

However, the Commission recognises that there is no certainty that the Cap on diversions at its current level represents a sustainable level of diversions – the level at which it is set being that which existed at the time when it was decided to introduce a Cap.

Further, the Commission recommends that as better information informs our management of the Basin's resources, the level at which the Cap is set should continue to be refined to reflect our increased understanding. It is likely that such refinements may lead to the lowering of the level of the Cap in some valleys. Indeed, some jurisdictions have already increased the environment's share, via access restrictions in addition to that required by the Cap, as part of their longer-term direction of improved water management.

The Commission also supports a regular Sustainable Rivers Audit of the Basin where the Cap would be cast as an input to Basin health rather than an outcome in itself.



### **Review of the Operation of the Cap — Ecological Sustainability of Rivers**

The Commission concludes that:

- the Cap has supported the Murray-Darling Basin Ministerial Council's aim of achieving the ecological sustainability of the Basin's river systems (**Conclusion 1**);
- while the Cap does not necessarily provide for a sustainable Basin ecosystem, it has been an essential first step in achieving this outcome (**Conclusion 2**);
- all water users throughout the Basin need to recognise that the water they use is part of the reduced water available to the environment (**Conclusion 3**);
- that without the Cap there would have been a significantly increased risk that the environmental degradation of the river system of the Murray-Darling Basin would have been worse (**Conclusion 4**);
- the degradation caused by the current level of diversions ("the Cap") may well become more severe than that now apparent (**Conclusion 5**); and
- the catchment scale is the necessary spatial resolution to effectively manage our natural resource systems (**Conclusion 6**).

The Commission recommends that:

- the Cap should be maintained (**Recommendation 1**);
- the precautionary approach is appropriate (**Recommendation 2**);
- the benefit to the environment stemming from the water available to it should be maximised (**Recommendation 3**);
- a high priority be given to further improving the knowledge base available to natural resource managers, especially our understanding of the ecology of the Basin (**Recommendation 4**);
- as better information informs our management of the Basin's resources, the level at which the Cap is set should continue to be refined to reflect our increased understanding (**Recommendation 5**); and

- a Sustainable Rivers Audit, casting the Cap as an input to Basin health rather than an outcome in itself, be developed and implemented (**Recommendation 6**).

### **Economic and Social Impacts**

The Commission considers that the overall benefit of the Cap, especially from ensuring security of supply at a valley level and providing an environment within which water trading and related reforms could be developed, has been a positive one and that the net benefit will increase over time.

The results of research conducted for the Review make it clear that, in the absence of the Cap, the erosion of security of supply for irrigators and other users would have been significant. These analyses were performed on several systems across the Basin reflecting diverse agricultural practices and climatic conditions.

Against this background, one benefit of the Cap is the guaranteeing of security of water supply at the valley level. Without the Cap, there would have been continued development and activation of water entitlements that had not been fully used (so called "sleepers" and "dozers") without a method of overall control. Through guaranteeing security, the Commission views the Cap as having provided a more certain climate for long-term investment and development, particularly in high value agriculture and value adding processing, as well as providing benefits to the environment.

The Commission considers that the Cap has provided a mechanism for restraining growth in diversions while enabling economic development to proceed. The Cap has enabled better definition of property rights governing water availability and provided an incentive for the States to establish market arrangements for trading in water entitlements (which has and will continue to encourage water to go to its highest value use). The Cap has also helped provide a focus for community discussions on resource sustainability which have helped to alleviate tensions over resource distribution and environmental degradation between irrigator groups and between urban and rural Australians.

The Commission recognises that this strong positive conclusion will not be the perception of every stakeholder in the Basin. However, the Commission concludes that the overall benefit of the Cap, especially from ensuring security of supply at a valley level and providing an

environment within which water trading and related reforms could be developed, has been a positive one.

### **Review of the Operation of the Cap — Economic and Social Impacts**

The Commission concludes that:

- that the overall benefit of the Cap, especially from ensuring security of supply at a valley level and providing an environment within which water trading and related reforms could be developed, has been a positive one and that the net benefit will increase over time (**Conclusion 7**);
- the Cap has provided a more certain climate for long-term investment and development (**Conclusion 8**);
- the Cap has reduced the sensitivity of irrigated agriculture to extreme climatic events (**Conclusion 9**);
- the Cap has stimulated the streamlining of property rights to facilitate water trading (**Conclusion 10**);
- the Cap has accelerated water trade and increased the associated benefits such as improved confidence amongst traders to invest to achieve good economic outcomes (**Conclusion 11**);
- the Cap has, through protecting security of supply, circumvented tensions between irrigator groups (**Conclusion 12**);
- the Cap, through preventing the accelerated degradation of the riverine environment, has benefited the social cohesion of Australia by preventing a further increase in the perceived division between urban and rural Australians (**Conclusion 13**);
- the Cap has produced generally positive social outcomes through the flow-on effect of its economic benefits, and these positive effects will increase over the longer term (**Conclusion 14**); and
- the Cap, through protection of the natural capital stock from accelerated decline, has generated direct economic benefits to non-agricultural enterprises such as tourism, recreation and real estate amenity (**Conclusion 15**).

The Commission recommends that:

- partner Governments consider the opportunity provided by the 2001 Census to supplement the socio-demographic data it will provide with further information to improve our understanding of the social impacts of the Cap (**Recommendation 7**); and
- partner Governments strive to better inform and engage stakeholders on major policy initiatives such as the Cap through improved communication (**Recommendation 8**).

### **Equity**

There are several equity issues (notably Cap arrangements for Queensland and the ACT) of longstanding duration that require urgent resolution. In addition there are several more recently identified equity issues (floodplain and overland flows and diversions, farm dams and tree plantations) also requiring attention. The effective management of these issues will necessitate an integrated catchment management approach to water management that embraces both surface and groundwater resources.

The Commission focused on equity issues arising from the implementation of the Cap between jurisdictions and between river valleys within States. In several cases, the submissions received by the Review of the Operation of the Cap raised equity issues that are about the details of implementation within valleys. These issues are outside the jurisdiction of the Murray-Darling Basin Commission and Ministerial Council processes. The vast majority of such issues related to the recognition of licensed entitlement versus history of use, specifically in New South Wales (the "sleeper/dozer" issue). The draft Overview Report recommendation that such issues be referred to the particular jurisdiction concerned was not considered satisfactory by many of the submissions received on the draft Overview Report. The Commission reiterates the finding that such issues must be dealt with by individual jurisdictions and recommends that all parties to the *Murray-Darling Basin Agreement* work to improve community understanding of the various roles within the *Agreement*.



### **Review of the Operation of the Cap — Equity**

The Commission recommends that:

- the Cap adjustments for Lake Mokoan (VIC) and Pindari Dam (NSW) be resolved by June 2001 and late 2000 respectively in the interest of increasing Government and community confidence in the Cap (**Recommendation 9**);
- the Cap arrangements for the Queensland component of the Murray-Darling Basin be resolved in the anticipated timeframes specified in Section 4.3 (**Recommendation 10**);
- the Cap for the ACT, including the arrangements for trade with New South Wales, be resolved as a matter of high priority (**Recommendation 11**);
- all forms of water use be incorporated in Cap management arrangements as they are recognised and can be quantified (**Recommendation 12**);
- an integrated catchment management approach is required to address the equity issues associated with the Cap (**Recommendation 13**);
- diversions from floodplain and overland flows be included in Cap accounting arrangements as a matter of priority (**Recommendation 14**);
- farm dam water use should be included in Cap accounting arrangements as soon as practicable and all future administrative arrangements should support this outcome (**Recommendation 15**);
- water use by tree plantations eventually be considered for inclusion in the Cap where it is found to be significant (**Recommendation 16**);
- the outcomes of the Salinity Management Strategy be integrated into Cap implementation procedures (**Recommendation 17**);
- each Government give consideration to issues raised in the Review of the Operation of the Cap that are outside the jurisdiction of the MDBC (**Recommendation 18**); and

- the Murray-Darling Basin Commission and the individual jurisdictions work to increase community understanding of their roles and responsibilities within the *Murray-Darling Basin Agreement* (**Recommendation 19**).

### **Implementation and Compliance**

The Commission recognises that the management of a scarce water resource is an ongoing task. In the Murray-Darling Basin, the Cap on diversions is a central feature of this management.

The work of the IAG on the ongoing implementation of the Cap and compliance of actual diversions with Cap target diversions has provided a clear direction for the finalisation of the implementation phase of the Cap. The Commission generally supports the IAG recommendations.

The Commission supports the recommendation that groundwater be managed on an integrated basis with surface water within the spirit of the Cap and recommends further work towards this goal.

Significantly, effective compliance tools (computer simulation models used to determine Cap target diversions) have not yet been developed and the Commission recommends that a high priority be given to the finalisation of these models.

The Review has found that Victoria and South Australia have complied with the Cap, while Queensland and ACT are yet to complete the establishment of their respective Caps. Nevertheless, it is apparent that in Queensland there has been significant growth in storage which will impact on the water available for alternative consumptive and environmental uses. In New South Wales, the Cap has been breached in the Barwon-Darling system, with other valleys being within Cap limits.

The Commission supports the improved implementation of the Cap in the areas identified under the Review and reiterates the importance of compliance of actual diversions with Cap targets.

### **Review of the Operation of the Cap — Implementation and Compliance**

The Commission recommends that:

- groundwater be managed on an integrated basis with surface water within the spirit of the Cap (**Recommendation 20**);
- a Murray-Darling Basin Groundwater Management Strategy be developed by the Groundwater Technical Reference Group that is based on jurisdictional management of groundwater through sustainable yields and includes investigations clarifying how groundwater management practices may impact upon the integrity of the Cap in the future (**Recommendation 21**);
- a high priority be given to the finalisation of the compliance tools (computer simulation models) to determine Cap compliance (**Recommendation 22**).

### **Schedule F – Cap on Diversions**

The most important challenge in Cap implementation is to finalise the arrangements under "Schedule F – Cap on Diversions" to the *Murray-Darling Basin Agreement*. This schedule is the primary tool for defining Cap arrangements especially those concerned with assessing compliance and its consequences. With the intent of improving the operation of the Cap through the development of fair and meaningful compliance arrangements, three modifications to Schedule F were canvassed in the draft Overview Report on the Review.

The outcome of the Review of the Operation of the Cap in regard to Schedule F is to:

#### **End-of-valley flows**

- remove references to end-of-valley flows as a method for Cap compliance except for Queensland alone as an interim measure until December 2002;

#### **Remedial actions in case of Cap exceedance**

- accept the arrangements for remedial actions in the case of Cap exceedance ("to ensure that cumulative diversions are brought back into balance with the cap") noting that the cumulative diversions on the Register defined in the Schedule will be used as the basis for determining Cap compliance; and

### **Commencement date for Cap accounting**

- retain 1997/98 as the water year for the commencement of accounting for diversions under the Cap for New South Wales, Victoria, South Australia and the Australian Capital Territory (as it is part of the greater Murrumbidgee valley) with Cap accounting for Queensland to commence upon the finalisation of Cap arrangements in that jurisdiction.

The revised version of Schedule F incorporating these changes is at Appendix E. The Commission fully expects the revised Schedule F will:

- lead to the more effective future operation of the Cap;
- enhance community confidence in Cap arrangements across the Basin; and
- be a major milestone in the implementation of the Cap.

### **Review of the Operation of the Cap — Schedule F – Cap on Diversions**

The Commission recommends that:

- the revised version of Schedule F be adopted by the Ministerial Council as a permanent part of the *Murray-Darling Basin Agreement* incorporating the changes made to the Schedule through the Review of the Operation of the Cap (**Recommendation 23**).

### **Sustainable Rivers Audit**

With the implementation of the Cap nearing completion in most jurisdictions, there is now the opportunity to take the "next step" and to consider the environmental outcomes of the Cap from a whole of Basin perspective.

In line with **Recommendation 6**, the Commission supports the introduction of a regular environmental audit of the Basin's rivers, a Sustainable Rivers Audit, which would cast the Cap as an input to Basin health, rather than an outcome in itself.

Whereas the Cap is seen as the first step towards achieving the longer-term objective of the *Initiative*, a Sustainable Rivers Audit can be viewed as the next step in the process of achieving this objective.





# 1. Introduction

## **This Document**

In December 1996, the Murray-Darling Basin Ministerial Council agreed that the operation of the Cap (and, importantly, not the Cap itself) would be the subject of a review in 2000.

This document is the final report (August 2000) of the Murray-Darling Basin Commission on the **Review of the Operation of the Cap** to the Murray-Darling Basin Ministerial Council.

## **1.1 The Cap on Diversions in the Murray-Darling Basin**

### **1.1.1 Background**

The last 100 years has seen large increases in the extraction of water from the river system of the Murray-Darling Basin. Diversions grew from the 1870s but the rate of growth increased sharply in the 1950s and 1960s. For example, water extractions in the Basin more than tripled in the 50 years to 1994. This development of the Basin's water resources received active government and broad community support throughout most of this period.

However, by the early 1990s it had become clear that the rivers of the Murray-Darling Basin were under stress. The level of salinity in the Lower Murray was causing concern, the numbers of native fish were in severe decline, wetlands and red gum forests were suffering from a reduction in the frequency of flooding and in 1991 a toxic blue-green algae bloom extended for 1000 km along the Darling River. The level of diversions in the Basin's river systems and the changed flow regimes they had produced came under increased scrutiny at this time. A need to strike a balance between consumptive and instream uses of the water was identified and there was a realisation that there was a finite amount of water in the Basin. Also, it was clear that any further increase in extraction would affect the security of supply to existing users.

Since 1985, the organisation that has facilitated the interstate cooperation on the management of the Basin's natural resources has been the Murray-Darling Basin Ministerial Council (the "Ministerial Council"). The Ministerial Council consists of the ministers responsible for land, water and environmental resources in each of

the Commonwealth, New South Wales, South Australia, Victoria, Queensland and Australian Capital Territory Governments. Being a political forum, the Ministerial Council has the power to make decisions for the Basin as a whole. Resolutions of the Council require a unanimous vote. This means that decisions taken by the Council represent a consensus of Government opinion and policy across the Basin.

### **1.1.2 The Audit of Water Use in the Murray-Darling Basin**

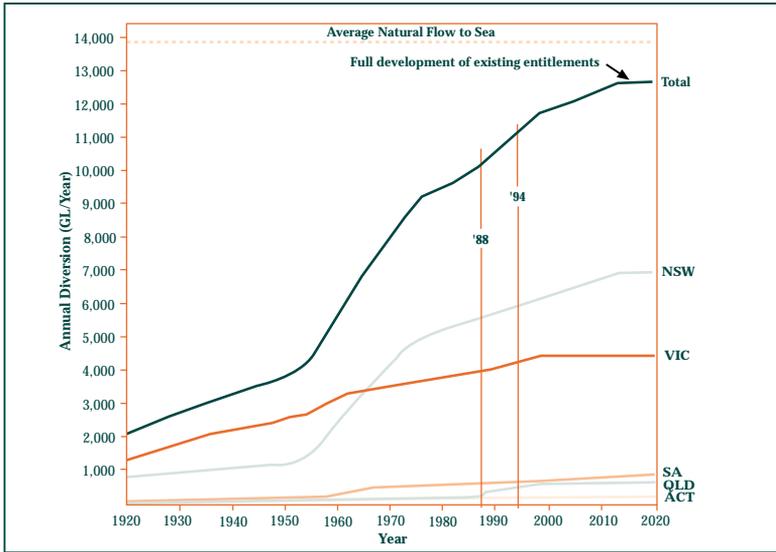
In June 1993, South Australian Minister Klunder presented a paper to the Murray-Darling Basin Ministerial Council entitled "The Changing Demands for Surface Water in the Murray-Darling Basin". Minister Klunder supported an emerging view that "there be no further regulation and diversion arrangements which would exacerbate deteriorating flow regimes" throughout the Basin. In response, the Ministerial Council directed that a report be prepared on the water diversions from the river system of the Murray-Darling Basin. The Ministerial Council published this report, "An Audit of Water Use in the Murray-Darling Basin" in June 1995.

The Audit confirmed increasing levels of diversions and the consequent decline in river health. From 1988 to 1994, water consumption in the Basin increased by 8% overall (see Figure 1). By 1994, water consumption in the Basin had reached approximately 11,000 GL per year. In the northern parts of the Basin, the percentage increases were very much greater, largely as a result of the expansion of the cotton industry, though large increases were also experienced in other areas.

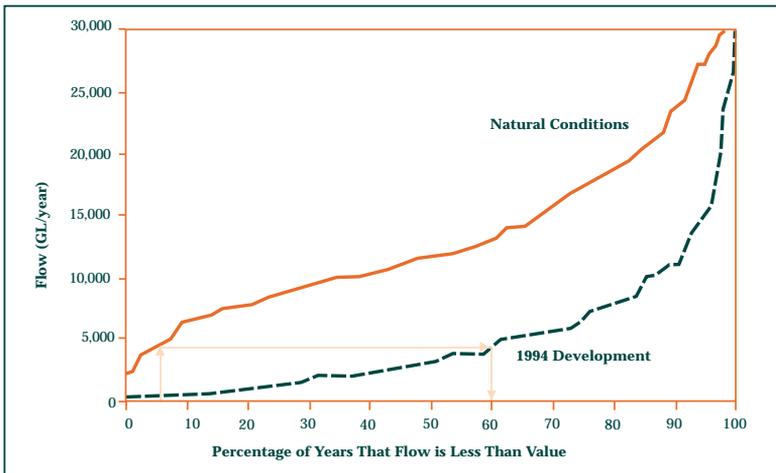
Among other things, the levels of water diversion have significantly reduced flows in the lower reaches of the River Murray. Under 1994 levels of development, median annual flows from the Basin to the sea are only 21% of those that would have occurred under natural conditions (see Figure 2). The reduction in flow has affected most notably the small to medium size flood events. The frequency of these events has been substantially reduced and many of them are completely harvested. One consequence is that the lower reaches of the Murray now experience severe drought-like flows in over 60% of years compared with 5% of years under natural conditions (see Figure 2).



**FIGURE 1 — Growth in Water Use in the Murray-Darling Basin (projections as at 1995 without a Cap).**



**FIGURE 2 — Flow Duration Curve for the Mouth of the River Murray.**



The Audit also examined the scope for diversions to grow further under the water allocation system that existed at that time. The existing system had evolved at a time when water managers were trying to encourage development of the Basin's water resources. As such, the system rationed water during periods of shortage but was not effective for controlling diversion during non-drought conditions. In the five years before the Audit, only 63% of the water that was permitted to be used was used, leaving considerable scope for further increases in consumption, without any change in entitlements.

The Audit found that average diversions could increase by a further 15% if all existing water entitlements were fully developed. Such an increase in diversion would reduce security of supply for existing irrigators. Increased diversions would mean that the level of reserves held in the storages would be lower than is currently the case. This would reduce the capacity of the storages to be a reliable source of supply during long periods of drought. Under this scenario, water supplies for existing irrigators would have become less secure and river health problems would have been exacerbated.

### 1.1.3 The Decision to Cap diversions

In response to the issues raised by the Audit, the Murray-Darling Basin Ministerial Council at its June 1995 meeting decided to introduce a Cap on the diversion of water from the Basin's river system. In the first two years, interim arrangements were used while details of the long term Cap were developed. In December 1996, partner Governments then confirmed a permanent Cap effective from 1 July 1997. June 2000 marks five years of Cap implementation.

The introduction of the Cap was seen as an essential first step in establishing management systems to achieve healthy rivers and sustainable consumptive uses. In other words, the Ministerial Council determined that a balance needed to be struck between the significant economic and social benefits that have been obtained from the development of the Basin's water resources on the one hand, and the environmental uses of water in the rivers on the other.

The Ministerial Council in its landmark decision to establish the Cap recognised that 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.

Since 1996 the Ministerial Council have used the following definition of the Cap:

***“The volume of water that would have been diverted under 1993/94 levels of development. In unregulated rivers this Cap may be expressed as an end-of-valley flow regime.”***

This has been the way the Cap has been applied, with small variations, in New South Wales, Victoria and South Australia (who between them extract 95% of the water diverted in the Basin). In Queensland and the Australian Capital Territory (total of 5% of Basin diversions), the final arrangements of the Cap are yet to be fully determined.

The definition adopted for the Cap in each jurisdiction is provided at Appendix A.

Diversion under 1993/94 levels of development does not mean the volume of water that was used in 1993/94. Rather, the Cap in any year is the volume of water that would have been used with the infrastructure (pumps, dams, channels, areas developed for irrigation, management rules, etc.) and management rules that existed in 1993/94, assuming similar climatic and hydrologic conditions to those experienced in the year in question. Thus, the Cap provides scope for greater water use in certain years and lower use in other years. The Cap itself does not attempt to reduce Basin diversions, merely prevent them from increasing. New developments are possible under the Cap provided that the water for them is obtained by improving water use efficiency or by purchasing water from existing developments.

### 1.1.4 Significance of the decision to Cap diversions

Against a backdrop of over 100 years of active development of the water resources of the Basin, the Ministerial Council decision to cap diversions from the Murray-Darling Basin river system is the single most significant water resources



initiative in the Basin since the establishment of the Ministerial Council in 1985.

It is now recognised as a landmark decision in natural resource management.

The Cap is a key policy decision in support of the goal of the *Murray-Darling Basin Initiative* which is

***to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin.***

As such, the Cap is not an end in itself, but rather a first step towards achieving the longer-term objective of the *Initiative*. Striking the correct balance in the Murray-Darling Basin is, and will continue to be, an ongoing process.

The heavy dependence of the Basin's economy (and in turn national and State economies) on the availability of water makes any major water management initiative a public policy issue. Water management in the Murray-Darling Basin potentially affects the well being of the Basin's 2 million inhabitants and a further 1 million people outside the Basin that are heavily dependent on its water.

Thus, the Cap on diversions is a major public policy issue affecting the lives of up to 3 million Australians and the health of our most important natural resource system, the Murray-Darling Basin.

## **1.2 The Review of the Operation of the Cap**

### **1.2.1 The Review**

As part of the decision by the Ministerial Council to introduce a permanent Basin-wide Cap on diversions, a major Review of the Operation of the Cap was scheduled for 2000. This Review has been a central feature of Cap implementation in 1999 and 2000 and aims to provide for improved Cap implementation across the Basin.

This Review was not about whether or not we need a Cap but is, however, a review of the operation of the Cap and how it can be further refined to meet the needs of the communities within the Murray-Darling Basin. It steps back from the detailed annual audits of Cap implementation conducted by the Independent

Audit Group (IAG) and looks to identify and address any matters that may not have been resolved in the initial phase of implementation.

From its inception, the Cap on diversions has had the support of each of the partner Governments to the *Murray-Darling Basin Agreement* reflected in unanimous support at Ministerial Council level for the arrangements in place.

This Review underscores the commitment of the Ministerial Council to the Cap on diversions. Also it reflects the awareness of Council that a major policy initiative such as the Cap cannot be implemented without a comprehensive review to address any matters that may not have been resolved in the initial phase of implementation.

The Review recognises that water management issues will arise from Cap implementation on an ongoing basis and the various policy responses that have been required since the decision to Cap diversions. Leadership has been shown by each of the Governments in managing water use in compliance with Cap levels. Policy and management decisions will continue to be made to ensure water use throughout the Basin remains within Cap levels.

The Review of the Operation of the Cap has four components as follows:

- Ecological Sustainability of Rivers;
- Economic and Social Impacts;
- Equity; and
- Implementation and Compliance.

The Cap Project Board has directed this Review of the Operation of the Cap on behalf of the Murray-Darling Basin Commission. This report is the final report of the Murray-Darling Basin Commission to the Murray-Darling Basin Ministerial Council on the Review of the Operation of the Cap.

The Terms of Reference for the Review are at Appendix B.

### **1.2.2 Advice sought by the Cap Project Board**

To inform the Review, four separate pieces of work were commissioned by the Cap Project Board on behalf of the Murray-Darling Basin Commission – one for each of the four components of the Review. For each of these

pieces of work, project briefs were developed specifically designed to support the Review process. In each case the brief required consideration of the submissions made to the Review.

### **Consultants**

Under two components of the Review, consultants were appointed after a competitive tendering process. The successful tenderers were:

- Ecological Sustainability of Rivers – CRC for Freshwater Ecology, Albury, NSW; and
- Economic and Social Impacts – Marsden Jacob Associates, Camberwell, VIC.

The two reports of the consultants are available as Companion Papers 1 and 2 respectively. The Murray-Darling Basin Commission has used these reports to inform their deliberations on the Review of the Operation of the Cap, however the opinions expressed in this document are those of the Commission.

### **The Independent Audit Group (IAG)**

The Independent Audit Group (IAG) has been involved in the implementation of the Cap on diversions since 1996 and, under present arrangements, are to continue with its annual audits of Cap implementation through to at least 2004. The IAG was engaged to conduct the work under the other two components of the Review:

- Equity; and
- Implementation and Compliance.

The two reports of the IAG are available as Companion Papers 3 and 4 respectively.

This report and the reports of the consultants and the IAG are available upon request from the Office of the Commission and on the Commission's web site: [www.mdbc.gov.au](http://www.mdbc.gov.au)

### **1.2.3 Submissions to the Review – November 1999**

Submissions to the Review were made in November 1999 by:

- the partner Governments to the *Murray-Darling Basin Agreement* (Commonwealth, NSW, VIC, SA, QLD and the ACT);

- the Community Advisory Committee of the Murray-Darling Basin Ministerial Council (CAC);
- other stakeholders throughout the Basin; and
- the Office of the Murray-Darling Basin Commission.

All submissions made to the Review in November 1999 are available on the Murray-Darling Basin Commission web site ([www.mdbc.gov.au](http://www.mdbc.gov.au)) and from the Office of the Commission. A list of these submissions is at Appendix C.

The submissions received formed a significant part of the Review process. Submissions were an important input into the deliberations of the consultants and the IAG. Each of the four reports under the Review address issues raised by the submissions.

In several cases, the submissions received by the Review of the Operation of the Cap raised issues that are about the details of implementation within valleys which are outside the jurisdiction of the Murray-Darling Basin Commission and Ministerial Council processes. Such issues need to be dealt with by the particular jurisdiction concerned. For discussion of these issues and their treatment see Section 4.5.

In order that all submissions receive appropriate attention, these submissions and that of the CAC have been referred to the appropriate Government for consideration and reply.

### **1.2.4 Draft Overview Report of the Cap Project Board – March 2000**

In March 2000, the Ministerial Council considered a draft Overview Report prepared on behalf of the Murray-Darling Basin Commission by the Cap Project Board. At that time, the Ministerial Council released the draft report on the Review of the Operation by the Cap for public comment through to 10 July 2000.

The draft Overview Report was widely distributed for comment to:

- Basin Stakeholders (including those who made a submission in the first phase of the Review in November 1999);
- all members of the Community Advisory Committee of the Murray-Darling Basin Ministerial Council (CAC), along with all



Catchment Coordinators, and the Cap Project Board Chair attended CAC Meeting 24 – 27 June 2000 to discuss the Review; and

- partner Governments (who were free to engage agencies and stakeholders in their jurisdictions as they saw fit to ensure that existing consultative processes were respected).

Submissions on the draft Overview Report were made in July 2000 by:

- four partner Governments to the Murray-Darling Basin Agreement (NSW, VIC, SA and QLD), ;
- the Community Advisory Committee of the Murray-Darling Basin Ministerial Council (CAC); and
- other stakeholders throughout the Basin (63 submissions).

All submissions made on the draft Overview Report in July 2000 are available on the Murray-Darling Basin Commission web site ([www.mdbc.gov.au](http://www.mdbc.gov.au)) and from the Office of the Commission. A list of these submissions is at Appendix D.

The final report of the Murray-Darling Basin Commission is based upon the draft report released by the Ministerial Council in March 2000 modified to reflect comments received in the public consultation process. This final report was presented to Ministerial Council Meeting 29 – 25 August 2000 for consideration and endorsement.



## **2. Ecological Sustainability of Rivers**

### **2.1 Introduction**

The Ecological Sustainability of Rivers component of the Review addressed the contribution of the Cap to the ecological sustainability of the river system of the Basin which was identified at inception as one of the primary objectives of the Cap.

Sustainability requires that a balance exists between supporting consumptive use and ensuring sufficient water is available to our rivers to maintain ecological processes. Achieving sustainability is of paramount importance as it will underpin the capacity of future generations to respond to hazards such as salinity and blue-green algae while maintaining an economically viable level of agricultural production.

The CRC for Freshwater Ecology were engaged to complete a piece of work designed specifically to inform this component of the Review. The full report of the CRC for Freshwater Ecology (February 2000) is the first of the Companion Papers to this document.

Informed by the work of the CRC for Freshwater Ecology and the submissions made to the Review on the draft Overview Report of the Cap Project Board, the Commission provides several conclusions and makes a number of recommendations in regard to this component of the Review of the Operation of the Cap.

### **2.2 Summary of Submissions on Draft Overview Report**

The submissions received in July 2000 on this component of the draft Overview Report were generally supportive of the provisional findings of the Review recognising the positive contribution of the Cap to the ecological sustainability of the river system of the Murray-Darling Basin. There was also general support for the statement that there is no certainty that the Cap on diversions at its current level represents a sustainable level.

Though general support for the Cap was evident, in the extremes, views expressed in the submissions ranged from abolition of the Cap through to tightening up (reducing) the Cap. This range of views was reflected in support for the refinement of Cap levels as better information becomes available to inform management of the Basin's resources for quite different reasons with some submissions stating refinements should not be limited to

decreases only. Yet other submissions suggested the Cap could be loosened (raised) in their particular valley.

The submissions received were supportive of the conclusion that the Cap had been an essential first step in providing for the environmental sustainability of the river system of the Murray-Darling Basin. However, there was some concern expressed that there may have been insufficient time since Cap implementation to see the environmental effects that could be attributed specifically to the Cap.

Many submissions emphasised the need for more and better science to continually inform the water resource management practices throughout the Basin. The Sustainable Rivers Audit being developed by the Commission addresses this issue.

Recognising the views expressed in the submissions on the draft Overview Report, the Commission has fashioned advice to Council as conclusions and recommendations in the following section.

### **2.3 The Ecological Sustainability of the Basin's Rivers**

#### ***Cap be maintained***

Through restricting further diversions in all rivers, the Cap has protected riverine environments from much greater levels of degradation than would have occurred without the Cap. For this reason, the Commission very strongly supports the maintenance of the Cap recognising it as the first step toward striking the balance between instream and consumptive uses. While there are aspects of the operation of the Cap where potential for improvement has been identified, the Cap has had a positive impact and should be maintained.

The Commission has concluded that:

- the Cap has supported the Murray-Darling Basin Ministerial Council's aim of achieving the ecological sustainability of the Basin's river systems (**Conclusion 1**).

Recognising the positive impact of the Cap, the Commission recommends that:

- the Cap should be maintained (**Recommendation 1**).



### ***No certainty the Cap represents a sustainable level of diversions***

The Commission saw no evidence to provide them with certainty that the Cap on diversions at its current level represents a sustainable level of diversions. The current level for the Cap on diversions is just the level that existed at the time it was decided that a limit needed to be introduced. The introduction of the Cap was in response to the 1995 "Audit of Water Use in the Murray-Darling Basin" which recorded the then existing levels of diversion in response to growing concerns about the health of the river system.

Views expressed in the submissions included that refinements to Cap levels should not be limited to decreases only and that the Cap could be loosened (raised) in particular valleys. These views are consistent with the opinion often expressed throughout the Basin that "our little bit won't hurt" and does not recognise the impact of all diversions in any part of the Basin on the health of the river system throughout the Basin. The Commission feels there is a need to develop an understanding of the impact of the diversion activity in any one part of the Basin on the health of the river system throughout the Basin.

The Commission concludes that:

- while the Cap does not necessarily provide for a sustainable Basin ecosystem, it has been an essential first step in achieving this outcome (**Conclusion 2**).
- all water users throughout the Basin need to recognise that the water they use is part of the reduced water available to the environment (**Conclusion 3**).

### ***Environmental degradation worse without the Cap***

A clear correlation exists between increases in diversions, our single biggest intervention in the Murray-Darling Basin, and decline in river health. Any further increases in diversion, anywhere in the Basin, will decrease the health of the river ecosystem. Increased diversions would also exacerbate the detrimental effect of introduced species, such as European carp.

Based on the evidence collated by the CRC for Freshwater Ecology and the submissions made on the draft Overview Report, the Commission has concluded:

- that without the Cap there would have been a significantly increased risk that the environmental degradation of the river system of the Murray-Darling Basin would have been worse (**Conclusion 4**).

### ***Time lags in environmental response***

There are significant time lags in the Australian environment between human intervention and the manifestation of the impacts of this intervention. Decades, or even centuries, are often required for the environmental effects of our activities to become apparent. Accordingly, the level of degradation apparent in the Basin in the early 1990s, which was sufficient for the Ministerial Council to commission the Water Audit and for it to respond with the Cap, was the result of past exploitation which occurred over many years, when diversions were considerably lower.

Recognising this, the Commission realises that the consequence of the current levels of diversions under the Cap may not be known for several decades. As such, the Commission concludes that:

- the degradation caused by the current level of diversions ("the Cap") may well become more severe than that now apparent (**Conclusion 5**).

Under these circumstances, the Commission recommends that:

- the precautionary approach is appropriate (**Recommendation 2**).

### ***Need to maximise benefit to the environment of the environment's share***

The Cap on diversions, which limits the further growth in consumptive use in the Basin, has provided a platform for increased scrutiny of extractions from the river system of the Basin and has consequently encouraged many improvements in water use practices. An equivalent level of performance should also be expected of the water reserved for the environment. There is a clear need to maximise the benefit to the environment of the environment's share. The development and introduction of environmental flow objectives and rules is an example of increased attention being paid to this issue.

Further, improved management of the environment's share more generally, including

accounting for environmental water, and savings and losses of this water is also required. Improvements in the data available to assess the impact of diversions on the ecological health of the Basin's river system will also complement this objective.

The Commission recommends that:

- the benefit to the environment stemming from the water available to it should be maximised (**Recommendation 3**).

### ***Exposure of environment's share to reduced catchment yield***

The Cap as currently defined focuses on consumptive uses and prohibits the absolute quantum of this share increasing over time. This in turn protects the share of available resource for the environment in so far as the size of the total available resource can be considered constant. If catchment yield were to be significantly reduced by climate change or land use change, the reductions would be largely at the expense of the environment's share (see CRC for Freshwater Ecology, Section 6.7). Under the Implementation and Compliance component, the IAG has made some recommendations in regard to land use changes such that the integrity of the Cap is protected. Climate change cannot be similarly controlled. Consequently, the catchment scale is seen as the necessary spatial resolution to effectively manage our natural resource systems.

The Commission concludes that:

- the catchment scale is the necessary spatial resolution to effectively manage our natural resource systems (**Conclusion 6**).

### ***Cap should be refined based upon increased understanding***

While many submissions in the first phase of the Review criticised the level of science behind the introduction of the Cap, to do nothing was not possible in the face of the evident degradation of the Basin. Notwithstanding the fact that the Ministerial Council acted positively through the introduction of the Cap, the refinement of the Cap, specifically the level at which it is set, should be considered as our knowledge base improves.

The knowledge base available to natural resource managers has improved markedly since the introduction of the Cap and it will continue to improve over the coming years.

The Commission recommends that:

- a high priority be given to further improving the knowledge base available to natural resource managers, especially our understanding of the ecology of the Basin (**Recommendation 4**); and
- as better information informs our management of the Basin's resources, the level at which the Cap is set should continue to be refined to reflect our increased understanding (**Recommendation 5**).

It is likely that such refinements may lead to the lowering of the level of the Cap in some valleys. Indeed, some jurisdictions have already increased the environment's share, via access restrictions in addition to that required by the Cap, as part of their longer-term direction of improved water management.

### ***Recommendation of a regular Sustainable Rivers Audit***

Many submissions to the Review discussed the need for an assessment of the contribution of the Cap on diversions to the health of the Basin's rivers. This is consistent with the needs to maximise the benefit to the environment of the environment's share and incorporating an improved understanding of the ecology of the Basin in Cap management.

A regular environmental audit of the Basin's rivers, a Sustainable Rivers Audit, would serve to inform the debate on the effectiveness of the Cap on an ongoing basis. This is consistent with the view of the IAG who believe that, with the implementation of the Cap nearing completion in most jurisdictions, there is now the opportunity to take the next step and to consider the environmental outcomes of the Cap from a whole of Basin perspective (see further discussion in Section 7).

To monitor the environmental health of the Basin's rivers and to inform the community of the location and extent of degradation, the Commission supports a regular Sustainable Rivers Audit. This audit would cast the Cap as an input to Basin health rather than an outcome in itself and would bring into focus the effect of past and recent levels of diversion on the health of the Basin.

The Commission recommends that:

- a Sustainable Rivers Audit, casting the Cap as an input to Basin health rather than an outcome in itself, be developed and implemented (**Recommendation 6**).



## 2.4 Component Summary

The Commission has concluded that the Cap has been an essential first step in providing for the environmental sustainability of the river system of the Basin. Without the Cap, there would have been a significantly increased risk that the environmental degradation of the river system of the Murray-Darling Basin would have been worse. While there are aspects of the operation of the Cap where potential for improvement has been identified, the Cap has had a positive impact and should be maintained.

However, the Commission recognises that there is no certainty that the Cap on diversions at its current level represents a sustainable level of diversions – the level at which it is set being that which existed at the time when it was decided to introduce a Cap.

Further, the Commission recommends that as better information informs our management of the Basin's resources, the level at which the Cap is set should continue to be refined to reflect our increased understanding. It is likely that such refinements may lead to the lowering of the level of the Cap in some valleys. Indeed, some jurisdictions have already increased the environment's share, via access restrictions in addition to that required by the Cap, as part of their longer-term direction of improved water management.

The Commission also supports a regular Sustainable Rivers Audit of the Basin where the Cap would be cast as an input to Basin health rather than an outcome in itself.

### **Review of the Operation of the Cap — Ecological Sustainability of Rivers**

The Commission concludes that:

- the Cap has supported the Murray-Darling Basin Ministerial Council's aim of achieving the ecological sustainability of the Basin's river systems (**Conclusion 1**);
- while the Cap does not necessarily provide for a sustainable Basin ecosystem, it has been an essential first step in achieving this outcome (**Conclusion 2**);
- all water users throughout the Basin need to recognise that the water they use is part of the reduced water available to the environment (**Conclusion 3**);

- that without the Cap there would have been a significantly increased risk that the environmental degradation of the river system of the Murray-Darling Basin would have been worse (**Conclusion 4**);
- the degradation caused by the current level of diversions ("the Cap") may well become more severe than that now apparent (**Conclusion 5**); and
- the catchment scale is the necessary spatial resolution to effectively manage our natural resource systems (**Conclusion 6**).

The Commission recommends that:

- the Cap should be maintained (**Recommendation 1**);
- the precautionary approach is appropriate (**Recommendation 2**);
- the benefit to the environmental stemming from the water available to it should be maximised (**Recommendation 3**);
- a high priority be given to further improving the knowledge base available to natural resource managers, especially our understanding of the ecology of the Basin (**Recommendation 4**);
- as better information informs our management of the Basin's resources, the level at which the Cap is set should continue to be refined to reflect our increased understanding (**Recommendation 5**); and
- a Sustainable Rivers Audit, casting the Cap as an input to Basin health rather than an outcome in itself, be developed and implemented (**Recommendation 6**).

## **3. Economic and Social Impacts**

### **3.1 Introduction**

The Cap is one of the many influences on the economy and social structure of the community of the Basin. This component of the Review analyses the contribution of the Cap, both positive and negative, to the economic performance of communities across the Basin and the related social impacts.

Marsden Jacob Associates were engaged to complete a piece of work designed specifically to inform this component of the Review. The full report of the Marsden Jacob Associates (March 2000) is the second of the Companion Papers to this document.

Informed by the work of Marsden Jacob Associates and the submissions made to the Review on the draft Overview Report of the Cap Project Board, the Commission provides several conclusions and makes a number of recommendations in regard to this component of the Review of the Operation of the Cap.

### **3.2 Summary of Submissions on Draft Overview Report**

From the submissions received in July 2000 on this component of the draft Overview Report, the consensus view was that the Cap has laid the foundation for economic and social benefits that will be realised over the longer term. The respondents to the Review were generally supportive of the Cap, though some were of the opinion that the benefits arising from the implementation of the Cap had been overstated others expressed concerns in reference to specific claims made regarding the benefits that have been delivered.

The finding that the Cap has provided security on a valley by valley basis was very strongly supported throughout the submissions, though the distinction between valley security and individual security was emphasised. Points raised included:

- the Cap has accelerated the activation of sleeper and dozer licences, thereby eroding individual security (see Section 4.5);
- increased use upstream is eroding the security of downstream users, and;
- there is no security of supply without well-defined property rights.

The proposition that compelling evidence existed in regard to the benefits delivered by the Cap was contested, with several submissions citing a lack of evidence to support the claim. Some submissions claimed evidence existed in contradiction of this statement, others that the benefits are not Basin wide and that there had been negative local impacts. A number of submissions suggested that the Cap has laid the foundation for economic and social benefits that will be realised over the longer term.

The assertion that the Cap had restrained growth, while allowing for economic development was generally supported by the submissions, though it was widely questioned whether this restraint had occurred in an "orderly fashion". A range of opinions were presented in relation to whether a more certain climate for long term investment had been achieved. Arguments against the proposition were given both from the perspective of a perceived decrease in the individuals' security of supply, and under the assumption that current diversion levels are too high to be sustained. The respondents generally agreed a move was being made to high-value agriculture, though some questioned whether this was actually a desirable outcome for the community.

The methodology employed in the Marsden Jacob report was questioned by a number of respondents, citing a lack of evidence provided in support of some of the conclusions presented.

While some questioned the overall benefit to the community of water trading and change of resource use, respondents generally concurred that the Cap had both provided an environment conducive to water trade, and facilitated the movement of resources to high value agriculture.

### **3.3 The Economic and Social Impacts of the Cap**

#### **3.3.1 General**

The Murray-Darling Basin Commission believes that the implementation of the Cap has had a positive impact on the economic and social health of the Basin community. However the Commission recognises certain negative local impacts due to the introduction of the Cap as identified in some of the submissions to the Review, but is of the opinion that, in time, all communities throughout the Basin will reap the benefits of Cap implementation.



The economic and social impacts of the Cap are discussed throughout the Marsden Jacob Associates report with Chapter 6 of that report presenting a summary and overview of the arguments presented.

Without the Cap, responses to water resource constraints brought about by continued development would have been arbitrary and lacking in cohesion. This would have resulted in greater economic impact among irrigation communities through reduced resource security and greater adjustment pressures. Also, there would probably have been heightened social tensions between irrigator groups, between river valleys and between urban and rural Australians.

With this in mind, the Commission considers that the Cap has provided a mechanism for restraining growth in diversions while enabling economic development to proceed. In doing so it has circumvented some of the more serious economic and social effects of severe resource constraint which would have eventuated with continuing increases in diversions along with a severe decline in river health.

The combination of the Cap with water trading arrangements has ensured that placing a limit on consumptive use in the Basin has not stifled development. Indeed, this combination has been favourable to the development of enterprises where water is put to its highest value use. As a result, the water extracted from the Basin's river system is increasingly providing an enhanced economic benefit to the Basin.

Notwithstanding these findings, the Commission is aware that the Cap, and the modified water management practices it has been instrumental in driving, have had differential impacts across the Basin community.

Lower allocations due to resource availability will impact greatest on those enterprises that are most reliant on high allocations, including the historic ability to utilise the unused allocations of other entitlement holders. However, the costs would have been even higher to existing irrigators if the Cap hadn't been introduced and the resource became fully developed, reducing security of supply further.

Although there may be short term costs to specific locations through the introduction of the Cap, the benefits of guaranteed security represents a major net benefit to the Basin in the longer-term.

The Commission concludes that:

- that the overall benefit of the Cap, especially from ensuring security of supply at a valley level and providing an environment within which water trading and related reforms could be developed, has been a positive one and that the net benefit will increase over time (**Conclusion 7**).

### **3.3.2 Benefits and costs to the agricultural economy**

#### ***The Cap has guaranteed security of supply at the valley level***

The results of research conducted for the Review make it clear that, in the absence of the Cap, the erosion of security of supply for irrigators and other users would have been significant. These analyses were performed on several systems across the Basin reflecting diverse agricultural practices and climatic conditions.

Against this background, one benefit of the Cap is the guaranteeing of security of water supply at the valley level. Without the Cap, there would have been continued development and activation of water entitlements that had not been fully used (so called "sleepers" and "dozers") without a method of overall control. Through guaranteeing security, at the valley level, the Commission views the Cap as having provided a more certain climate for long-term investment and development, particularly in high value agriculture and value adding processing, as well as providing benefits to the environment.

The Commission concludes that:

- the Cap has provided a more certain climate for long-term investment and development (**Conclusion 8**).

As noted above, the benefits of providing long-term security are potentially offset by the costs associated with the reduced development opportunities as a result of the introduction of the Cap. However, based upon the analysis of Marsden Jacob Associates (see Chapter 6 – Companion Paper 2) the Commission believes that these costs would have been minimal so far.

#### ***Reduced exposure to climatic extremes***

Without the Cap, the growth in diversions towards full development of the resource would increase the sensitivity of irrigated agriculture to

extreme climatic events. Consequently there would be a heightened impact of drought conditions on cash flow and greater recourse to debt financing of commitments. The Cap is therefore an important tool for maintaining the viability of irrigated agriculture in the Basin and preventing irrigators from having to leave the land due to financial ruin. The Commission views this as a further benefit of the Cap.

The Commission concludes that:

- the Cap has reduced the sensitivity of irrigated agriculture to extreme climatic events (**Conclusion 9**).

#### ***Improved codification of property rights and entitlements over water***

The introduction of the Cap provided the stimulus for codifying and improving property rights and entitlements to water. By placing a finite limit on diversions across the Basin, a stronger property right is established by providing known and guaranteed security. The Commission also views the Cap as having stimulated the streamlining of property rights to facilitate water trading.

The Commission concludes that:

- the Cap has stimulated the streamlining of property rights to facilitate water trading (**Conclusion 10**).

#### ***Acceleration of water trade***

The Commission concludes that the Cap has provided the impetus to facilitate trade. This has led to the fostering of better trading rules, third party protection and easier movement of water to high value activities. It has also provided entitlement holders with a tradeable asset. The Commission acknowledges the view expressed in some submissions that the transfer of water to maximise economic benefit may have an associated social cost, but notes that increased mobility of the resource was generally supported by stakeholders. By allowing water to move to higher value uses through water trade, the economic cost of compliance with the Cap and environmental flow rules is substantially reduced. Although trade would have occurred in the absence of the Cap, the Cap has accelerated trade and increased the associated benefits such as improved confidence amongst traders to invest to achieve good economic outcomes.

The Commission concludes that:

- the Cap has accelerated water trade and increased the associated benefits such as improved confidence amongst traders to invest to achieve good economic outcomes (**Conclusion 11**).

#### ***Tension between irrigator groups circumvented***

Without the Cap, the water resource would have continued to be developed, reducing resource security. This would undoubtedly have led to increased tensions between irrigator groups and between regions and water trading would have become more aggressive. There would have been a disorderly scramble and lack of process. The Commission views as a benefit of the Cap that it has allowed the valleys and States in the Basin to avoid these disputes.

The Commission concludes that:

- the Cap has, through protecting security of supply, circumvented tensions between irrigator groups (**Conclusion 12**).

#### ***Increased tension between urban and rural Australia circumvented***

Without the Cap on diversions from the Basin's river systems, continued development would lead to consequential reductions in river flows and accelerate the degradation of the riverine environment. The metropolitan electorate would become increasingly impatient with the irrigation community and the unwillingness of governments to halt the degradation. Some submissions expressed scepticism regarding the influence of the Cap in alleviating community tensions, however the Commission contends that it has when compared to a no Cap scenario and therefore views the Cap as having benefited the social cohesion of Australia by preventing a further increase in the perceived division between urban and rural Australians.

The Commission concludes that:

- the Cap, through preventing the accelerated degradation of the riverine environment, has benefited the social cohesion of Australia by preventing a further increase in the perceived division between urban and rural Australians (**Conclusion 13**).

#### ***Social impacts of the Cap***

The Commission recognises the difficulties facing rural and regional Australia, and specifically the



Murray-Darling Basin. These difficulties have been produced by a complex set of factors. For instance, over the five years since the implementation of the Cap, farming communities in the Basin have had to respond to a wide range of external pressures and risks (see Marsden Jacob Associates, Section 5.6 – Companion Paper 2). These include:

- shifts in international commodity prices and declining producer terms of trade;
- demographic shifts in population from rural communities to major regional centres;
- a reduction in the number and an increase in the size of farms;
- wider pressures for increased productivity; and
- wide ranging water reforms.

This complex environment has led to many social problems, such as relationship difficulties, stress-related illnesses, declining rural services and increases in crime rates which were variously identified by some submissions to the Review in November 1999. In the context of this complex environment, further compounded by Australia's climatic variability, the Commission considers that it is difficult to attribute such specific social impacts to the Cap.

In fact, in light of the positive net economic benefits of the Cap identified in the work of Marsden Jacob Associates, and submissions to the draft Overview Report the Commission concludes the Cap is likely to have produced generally positive social outcomes through the flow-on effect of these economic benefits, and these positive effects will increase over the longer term.

The Commission concludes that:

- the Cap has produced generally positive social outcomes through the flow-on effect of its economic benefits, and these positive effects will increase over the longer term (**Conclusion 14**).

The Commission recognises an upcoming opportunity to improve our understanding of the social impacts of the Cap. The current socio-demographic profile data of the Basin extends only up to 1996 and therefore does not capture many of the more recent impacts of the Cap. The 2001 Census will provide new socio-demographic data on the Basin. At this time, partner Governments should be

encouraged to assemble other socio-demographic data to build upon the information available through the Census.

The Commission recommends that:

- partner Governments consider the opportunity provided by the 2001 Census to supplement the socio-demographic data it will provide with further information to improve our understanding of the social impacts of the Cap (**Recommendation 7**).

#### ***Misperceptions concerning the "No Cap" case***

A misperception identified in the process of the Review was that a number of submissions judged the Cap's impacts by comparing the situation since the Cap's introduction with the circumstances that existed pre-Cap in the early 1990's prior to significant resource constraints (see Marsden Jacob Associates, Section 6.3). The Commission notes that the appropriate scenario for assessing the Cap's impact is with the circumstances that would exist today had the Cap not been introduced, involving continued resource development, resource scarcity and reduced security.

In response to these misperceptions, the Commission fully supports the need to better inform and engage stakeholders on major policy initiatives such as the Cap. This will require an extensive communication strategy. Issues that should be targeted for better communication include:

- an appreciation that the impacts of the Cap should be compared with what the circumstances would have been like today had the Cap not been introduced, rather than the situation in the early 1990's prior to the Cap's introduction;
- the separation of the impacts of resource scarcity from the impacts of the Cap, including the activation of sleeper and dozer licences; and
- the major direct benefit to irrigated agriculture that the Cap provides through guaranteeing resource security.

The Commission recommends that:

- partner Governments strive to better inform and engage stakeholders on major policy initiatives such as the Cap through improved communication (**Recommendation 8**).

In addition to informing stakeholders outside the partner Governments to the *Agreement*, the Commission is in complete support of the recommendation that information sharing between the partner Governments should be encouraged across the Basin. This will serve to inform resource managers within the Basin to ensure their decisions and actions produce the best possible economic and social outcomes.

Further, another misperception reflected in some submissions is that the actions of individuals are not fully appreciated as having a Basin-wide impact. This has led some groups to support the Cap generally but seek special consideration to increase their own level of diversions.

### 3.3.3 Benefits and costs to the non-agricultural economy

#### *Economic benefits to non-agricultural enterprises*

The River Murray in South Australia provides a major source of drinking water for Adelaide. The protection provided by the Cap to Adelaide's water supply, especially the deferral of the date at which it would have become necessary to treat this water for salinity under a "No Cap" scenario, clearly has significant economic benefits.

Through the Cap's protection of the natural capital stock from accelerated decline, the Commission notes that this has, in turn, generated direct economic benefits to non-agricultural enterprises such as tourism, recreation and real estate amenity.

The Commission concludes that:

- the Cap, through protection of the natural capital stock from accelerated decline, has generated direct economic benefits to non-agricultural enterprises such as tourism, recreation and real estate amenity (*Conclusion 15*).

#### *The intrinsic value of the riverine environment*

The riverine environment has an intrinsic 'existence' value to most Australians. Although the costs of a high level of river degradation are intangible, the Commission believes that the Cap has slowed this degradation and the loss of capital value is therefore reduced.

## 3.4 Component Summary

The Commission considers that the overall benefit of the Cap, especially from ensuring security of supply at a valley level and providing an environment within which water trading and related reforms could be developed, has been a positive one and that the net benefit will increase over time.

The results of research conducted for the Review make it clear that, in the absence of the Cap, the erosion of security of supply for irrigators and other users would have been significant. These analyses were performed on several systems across the Basin reflecting diverse agricultural practices and climatic conditions.

Against this background, one benefit of the Cap is the guaranteeing of security of water supply at the valley level. Without the Cap, there would have been continued development and activation of water entitlements that had not been fully used (so called "sleepers" and "dozers") without a method of overall control. Through guaranteeing security, the Commission views the Cap as having provided a more certain climate for long-term investment and development, particularly in high value agriculture and value adding processing, as well as providing benefits to the environment.

The Commission considers that the Cap has provided a mechanism for restraining growth in diversions while enabling economic development to proceed. The Cap has enabled better definition of property rights governing water availability and provided an incentive for the States to establish market arrangements for trading in water entitlements (which has and will continue to encourage water to go to its highest value use). The Cap has also helped provide a focus for community discussions on resource sustainability which have helped to alleviate tensions over resource distribution and environmental degradation between irrigator groups and between urban and rural Australians.

The Commission recognises that this strong positive conclusion will not be the perception of every stakeholder in the Basin. However, the Commission concludes that the overall benefit of the Cap, especially from ensuring security of supply at a valley level and providing an environment within which water trading and related reforms could be developed, has been a positive one.



### ***Review of the Operation of the Cap — Economic and Social Impacts***

The Commission concludes that:

- that the overall benefit of the Cap, especially from ensuring security of supply at a valley level and providing an environment within which water trading and related reforms could be developed, has been a positive one and that the net benefit will increase over time (**Conclusion 7**);
- the Cap has provided a more certain climate for long-term investment and development (**Conclusion 8**);
- the Cap has reduced the sensitivity of irrigated agriculture to extreme climatic events (**Conclusion 9**);
- the Cap has stimulated the streamlining of property rights to facilitate water trading (**Conclusion 10**);
- the Cap has accelerated water trade and increased the associated benefits such as improved confidence amongst traders to invest to achieve good economic outcomes (**Conclusion 11**);
- the Cap has, through protecting security of supply, circumvented tensions between irrigator groups (**Conclusion 12**);

- the Cap, through preventing the accelerated degradation of the riverine environment, has benefited the social cohesion of Australia by preventing a further increase in the perceived division between urban and rural Australians (**Conclusion 13**);
- the Cap has produced generally positive social outcomes through the flow-on effect of its economic benefits, and these positive effects will increase over the longer term (**Conclusion 14**); and
- the Cap, through protection of the natural capital stock from accelerated decline, has generated direct economic benefits to non-agricultural enterprises such as tourism, recreation and real estate amenity (**Conclusion 15**).

The Commission recommends that:

- partner Governments consider the opportunity provided by the 2001 Census to supplement the socio-demographic data it will provide with further information to improve our understanding of the social impacts of the Cap (**Recommendation 7**); and
- partner Governments strive to better inform and engage stakeholders on major policy initiatives such as the Cap through improved communication (**Recommendation 8**).

## **4. Equity**

### **4.1 Introduction**

The resolution of equity issues has been an important feature of the implementation of the Cap since its inception. In their 1996 report "Setting the Cap", the IAG developed a set of guidelines against which individual issues and matters of equity and consistency can be judged. The IAG identified six principles or 'tests' against which to assess equity and consistency issues. The six principles are:

1. no further change be made to flow regimes that would contribute to deterioration of water quality and environment protection (instream, floodplain or estuarine);
2. water allocations be made with extreme sensitivity to the effects on the environment (Precautionary Principle);
3. water is allocated to the highest value use (allocative efficiency);
4. statutory and agreed property rights be recognised;
5. water management processes be transparent and auditable; and
6. a system of administration be implemented which is easily understood and which minimises time and costs (administrative efficiency).

It is recognised that there is a degree of tension between some of the principles as outlined above. In their annual audits of Cap implementation the IAG has frequently referred to these principles, which were endorsed by the Ministerial Council, to guide their deliberations on matters of equity.

Recognising the extended involvement of the IAG in equity issues arising from the implementation of the Cap, the IAG was engaged to identify any outstanding equity issues that have arisen from the implementation of the Cap that may put at risk its future management. Companion Paper 3 is the complete IAG report (February 2000) on the Review of the Operation of the Cap — Equity.

The Commission welcomes the contribution of the IAG to this ongoing discussion about equity issues. Building upon this report the Commission has made several recommendations in regard to the findings of the IAG. The

Commission is concerned that the future management of, and community confidence in, the Cap is put at risk by:

- pre-existing equity issues that remain unresolved (Section 4.3);
- newly identified equity issues that require resolution (Section 4.4); and
- an incorrect perception about the ability to resolve certain equity issues through Commission processes that are, in fact, the responsibility of the individual jurisdictions (Section 4.5).

Informed by the work of the IAG and the submissions made to the Review on the draft Overview Report of the Cap Project Board, the Commission makes a number of recommendations in regard to the equity component of the Review of the Operation of the Cap throughout this section.

### **4.2 Summary of Submissions on Draft Overview Report**

From the submissions received in July 2000 on this component of the draft Overview Report it was evident that the Review had clearly identified, and brought to the attention of the community, the equity issues requiring resolution to strengthen and refine the operation of the Cap.

The range of views expressed reflects the importance of Cap implementation being applied equally across all jurisdictions in a fair, equitable and timely manner which includes an increase in community consultation and education both at a jurisdictional and Basin scale in the resolution of existing and new equity issues.

#### **Pre-existing equity issues**

The resolution of a Cap for Queensland and the ACT are the most significant outstanding equity issues associated with the Cap. Submissions received addressing the Queensland and ACT Caps expressed a strong desire for the Commission and relevant jurisdictions to resolve these issues as quickly as possible.

Substantial frustration, and indeed exasperation, was expressed over the lack of a Queensland Cap and the continued growth in diversions and storage volumes. The submissions indicated that they considered this to be inflammatory and highly unfair to other water users within the Basin and that if the issue remained unresolved



support for the Cap in other jurisdictions could wane.

The determination of the Lake Mokoan allocation was not addressed in any of the submissions received, however the Pindari Dam allocation was addressed in the submission from the New South Wales Government. This submission noted that the a Cap for the NSW portion of the Border Rivers in relation to Pindari Dam had been completed and that a Cap model and supporting studies would be supplied to the IAG review of Cap implementation in late 2000.

#### **Newly identified equity issues**

Submissions addressing the newly identified equity issues stressed the importance of measuring and including all diversions within the Cap accounting arrangements. This included the measurement of diversions from floodplain and overland flows and the volume of water captured and used in on-farm dams in all jurisdictions.

Other submissions supported the implementation of an integrated catchment management approach to water management within the Basin that includes both surface water and groundwater.

A number of submissions also identified the differences in the calculation of the Cap in each jurisdiction as a substantive equity issue. These submissions expressed the opinion that the Cap is being unfairly applied across the Basin and that there has been scope for growth in diversions within some Caps. This highlights the need to have effective compliance tools and this issue is discussed in Section 5.3.

#### **Equity issues outside the jurisdiction of the MDBC**

During the first opportunity to make submissions to the Review (November 1999), a number of stakeholders raised equity issues that were outside the jurisdiction of the Murray-Darling Basin Commission and Ministerial Council processes. The vast majority of such issues related to the recognition of licensed entitlement versus history of use, specifically in New South Wales (the "sleeper/dozer" issue).

In recognition that such arrangements are the responsibility of the particular jurisdiction and in order that issues raised by stakeholders receive

proper consideration, the draft Overview Report recommended that these issues be referred to the appropriate Government for consideration and reply.

Many submissions on the draft Overview Report expressed concern at this treatment of the "sleeper/dozer" issue. Several stakeholders did not consider referral of this issue back to the particular jurisdiction acceptable.

### **4.3 Pre-existing Equity Issues**

Several pre-existing equity issues remain unresolved.

#### ***Determine Lake Mokoan (VIC) and Pindari Dam (NSW) allocations***

Lake Mokoan and Pindari Dam both represent an investment in a major asset that had not been fully developed at the time of the introduction of the Cap. In 1996, the Ministerial Council agreed to consider an increase in the Cap for each development with the exact quantum to be determined through the appropriate water allocation studies. The estimated completion dates for the determination of the Cap adjustments for these developments are now:

- Lake Mokoan: June 2001; and
- Pindari Dam: late 2000 (NSW will progress the resolution of this issue with the IAG during its annual review of Cap implementation in October 2000).

The Commission recognises the revised deadlines for these analyses and stresses the need for these studies to bring these issues to a close. Resolution should improve the future operation of the Cap, lead to increased Government and community confidence in the Cap and mitigate the risk that the Cap be undermined through incomplete implementation.

The Commission recommends that:

- the Cap adjustments for Lake Mokoan (VIC) and Pindari Dam (NSW) be resolved by June 2001 and late 2000 respectively in the interest of increasing Government and community confidence in the Cap (**Recommendation 9**).

#### ***Finalise Cap limits in the Queensland valleys***

Cap limits for the Queensland valleys have yet to be determined. Whereas other States agreed to a

Cap in 1995, Queensland agreed to undertake a process to determine the appropriate Cap arrangements for their component of the Murray-Darling Basin. The processes adopted, and their expected completions dates, for the various Queensland valleys are:

- Condamine-Balonne: Water Allocation Management Plan (WAMP) – January 2001;
- Moonie: Water Management Plan (WMP) – September 2000;
- Paroo/Warrego/Nebine: Water Management Plan (WMP) – November 2000; and
- Border Rivers: Flow Management Plan – July 2001.

The lack of clear resolution of Cap limits for the Queensland valleys is a significant risk to the Cap – certainly to its integrity in Queensland and also throughout the Basin. Lack of clear arrangements in Queensland potentially serves to undermine implementation efforts in other jurisdictions. The risk associated with the lack of formal Cap arrangements in Queensland was confirmed by the opinions expressed in the submissions on the draft Overview Report.

The Commission supports the attempts of the Queensland Government to finalise the development of Cap limits for the Queensland valleys. The Commission notes that the IAG has recommended prohibiting further growth in diversions while these arrangements are completed to ensure the present equity in resource distribution is maintained.

The Commission recommends that:

- the Cap arrangements for the Queensland component of the Murray-Darling Basin be resolved in the anticipated timeframes specified above (**Recommendation 10**).

#### **Resolve ACT Cap (and trading with New South Wales)**

The Commission welcomes the forthcoming proposal from the ACT Government on an appropriate Cap for the ACT. Concurrently, arrangements for water trading with New South Wales need to be clarified in order to provide the ACT with the necessary confidence to establish a Cap limit.

The Commission recommends that the Cap for the ACT, including the arrangements for trade with New South Wales, be resolved as a matter of high priority. Although the volume of

diversion in the ACT is not as large as that in Queensland, the risk is similar in that the Cap will be undermined if a perception were to form that a particular jurisdiction is exempt.

The Commission recommends that:

- the Cap for the ACT, including the arrangements for trade with New South Wales, be resolved as a matter of high priority (**Recommendation 11**).

#### **4.4 Newly Identified Equity Issues**

Since the original June 1995 decision of the Murray-Darling Basin Ministerial Council to introduce a Cap on diversions, all forms of consumptive water use in the Basin have been included under the Cap. However, in the initial phase of Cap implementation the focus was on the development of Cap management arrangements, including accounting of diversions, for the major extractive uses (eg, river pumpers, gravity diversions). The work of the IAG identified several new equity issues that centre on aspects of water use in the Basin that are not formally covered under present Cap arrangements. These water uses are diversions from floodplain and overland flows and farm dam water use – both of which were included under the original Cap decision. Further the IAG identified water use by tree plantations as a form of water use worthy of future consideration for the Cap.

Potential growth in the aspects of water use identified by the IAG (diversions from floodplain and overland flows, farm dam water use and water use by tree plantations) become equity issues between existing users and new developers. Also, where such impacts cross state and territory borders (eg, the impact of developments in the NSW catchment of Hume Dam on Victorian users), these issues become inter-jurisdictional. The types of water use that the IAG have identified as giving rise to equity issues are discussed in this section. The Commission views the inclusion in Cap management arrangements of each of these types of water use, within an appropriate timeframe, as an opportunity to improve the operation of the Cap. An integrated catchment management approach is viewed as the necessary approach to facilitate the effective management of such issues.



The Commission recommends that:

- all forms of water use be incorporated in Cap management arrangements as they are recognised and can be quantified (**Recommendation 12**);
- an integrated catchment management approach is required to address the equity issues associated with the Cap (**Recommendation 13**).

***Include diversions from floodplain and overland flows***

This is an issue in New South Wales and Queensland. Access to overland flows is also an issue in the upper catchment regions of Victoria. The Commission supports the IAG recommendations that diversions from floodplain and overland flows be measured and included in the relevant Cap accounting arrangements and that a statutory basis for the management of this water be provided where flows are significant. The Commission notes that Queensland has recently released an exposure draft of legislation that includes, for the first time, provisions to manage such flows.

The Commission recommends that this form of water use be included in Cap accounting arrangements as a matter of priority due to the potentially large volumes involved, and the significant scope for growth, in this form of diversion. The issue is improved accounting of diversions, in particular any growth that may have occurred since the 1993/94 Cap reference year as appropriate, and not an expansion of the scope of the Cap.

The Commission recommends that:

- diversions from floodplain and overland flows be included in Cap accounting arrangements as a matter of priority (**Recommendation 14**).

***Include farm dam water use***

Farm dam water use has been covered by the Cap since its introduction in June 1995. The first phase of Cap implementation has focused on major extractive uses and the need to extend Cap management arrangements to include accounting for farm dam water use has been identified in the Review. Again, the issue is improved accounting of diversions, in particular any growth that may have occurred since the 1993/94 Cap reference year as appropriate, and not an expansion of the scope of the Cap.

Whilst the difficulties in determining the water used by farm dams is acknowledged, the in principle inclusion of farm dam water use in Cap accounting arrangements is supported by the Commission. The Commission also recommends that all future administrative arrangements for farm dam monitoring and management be consistent with the overall goal of inclusion of this form of water use in Cap accounting arrangements. The Commission recommends that this should happen as soon as practicable with priority given to the areas where the scope for growth in this use is the largest.

The Commission recommends that:

- farm dam water use should be included in Cap accounting arrangements as soon as practicable and all future administrative arrangements should support this outcome (**Recommendation 15**).

***Include water use by tree plantations (and ensure consistent arrangements with Salinity Management Strategy)***

An emerging equity issue raised in submissions to the Review is the trend towards increased plantations. Increases in tree plantations will reduce catchment yield in a similar way to farm dams and also reduce accessions to groundwater. While the reduction in accession to groundwater could be seen as a beneficial impact in the control of dryland salinity, the reduction in river flows will have an impact on downstream users. As the Salinity Management Strategy being developed for the Murray-Darling Basin is likely to encourage large-scale reforestation to combat salinity, the significance of this equity issue can be expected to increase over the coming years.

The Commission recommends that the extent of proposed planting across the Basin be ascertained as soon as practicable. The Commission also recommends that water use by new plantations, and other changes in land use, be investigated to determine the impacts of these changes on catchment yield. The Commission also supports the eventual inclusion of this form of water use under the Cap where it is found to be significant.

The Commission strongly supports the integration of the outcomes of the Salinity Management Strategy, including those relating to tree plantations, into Cap implementation procedures to ensure an integrated approach to the management of the Basin's resources.

The Commission recommends that:

- water use by tree plantations eventually be considered for inclusion in the Cap where it is found to be significant (**Recommendation 16**).
- the outcomes of the Salinity Management Strategy be integrated into Cap implementation procedures (**Recommendation 17**).

#### 4.5 Equity Issues Outside the Jurisdiction of the MDBC

The Review of the Operation of the Cap focused on equity issues arising from the implementation of the Cap between jurisdictions and between river valleys within States. A number of stakeholders raised equity issues that are outside the jurisdiction of the Murray-Darling Basin Commission and Ministerial Council processes. The vast majority of such issues related to the recognition of licensed entitlement versus history of use, specifically in New South Wales (the "sleeper/dozer" issue). Such arrangements are the responsibility of the particular jurisdiction. The draft Overview Report recommended that these issues be referred to the appropriate Government for consideration and reply.

Many submissions on the draft Overview Report expressed concern at this treatment of the "sleeper/dozer" issue. Several stakeholders did not consider referral of this issue back to the particular jurisdiction acceptable. In light of the submissions received, the Commission accepts the need for the issues raised to be addressed however it reiterates that this must be done by the individual jurisdictions given the nature of these issues.

The Commission is concerned by the potential for the negative feedback and publicity created by such intra-valley issues to have a detrimental impact on the Cap, and more broadly the Commission and the *Murray-Darling Basin Initiative*. Accordingly, the partner Governments are urged to give consideration to such issues as soon as possible.

The Commission also recognises the need to improve the understanding of the roles and responsibilities of the MDBC and the individual jurisdictions that are partners to the *Murray-Darling Basin Agreement*.

The Commission recommends that:

- each Government give consideration to issues raised in the Review of the Operation of the Cap that are outside the jurisdiction of the MDBC (**Recommendation 18**).
- the Murray-Darling Basin Commission and the individual jurisdictions work to increase community understanding of their roles and responsibilities within the *Murray-Darling Basin Agreement* (**Recommendation 19**).

#### 4.6 Component Summary

There are several equity issues (notably Cap arrangements for Queensland and the ACT) of longstanding duration that require urgent resolution. In addition there are several more recently identified equity issues (floodplain and overland flows and diversions, farm dams and tree plantations) also requiring attention. The effective management of these issues will necessitate an integrated catchment management approach to water management that embraces both surface and groundwater resources.

The Commission focused on equity issues arising from the implementation of the Cap between jurisdictions and between river valleys within States. In several cases, the submissions received by the Review of the Operation of the Cap raised equity issues that are about the details of implementation within valleys. These issues are outside the jurisdiction of the Murray-Darling Basin Commission and Ministerial Council processes. The vast majority of such issues related to the recognition of licensed entitlement versus history of use, specifically in New South Wales (the "sleeper/dozer" issue). The draft Overview Report recommendation that such issues be referred to the particular jurisdiction concerned was not considered satisfactory by many of the submissions received on the draft Overview Report. The Commission reiterates the finding that such issues must be dealt with by individual jurisdictions and recommends that all parties to the *Murray-Darling Basin Agreement* work to improve community understanding of the various roles within the *Agreement*.



### **Review of the Operation of the Cap — Equity**

The Commission recommends that:

- the Cap adjustments for Lake Mokoan (VIC) and Pindari Dam (NSW) be resolved by June 2001 and late 2000 respectively in the interest of increasing Government and community confidence in the Cap (**Recommendation 9**);
- the Cap arrangements for the Queensland component of the Murray-Darling Basin be resolved in the anticipated timeframes specified in Section 4.3 (**Recommendation 10**);
- the Cap for the ACT, including the arrangements for trade with New South Wales, be resolved as a matter of high priority (**Recommendation 11**);
- all forms of water use be incorporated in Cap management arrangements as they are recognised and can be quantified (**Recommendation 12**);
- an integrated catchment management approach is required to address the equity issues associated with the Cap (**Recommendation 13**);
- diversions from floodplain and overland flows be included in Cap accounting arrangements as a matter of priority (**Recommendation 14**);
- farm dam water use should be included in Cap accounting arrangements as soon as practicable and all future administrative arrangements should support this outcome (**Recommendation 15**);
- water use by tree plantations eventually be considered for inclusion in the Cap where it is found to be significant (**Recommendation 16**);
- the outcomes of the Salinity Management Strategy be integrated into Cap implementation procedures (**Recommendation 17**);
- each Government give consideration to issues raised in the Review of the Operation of the Cap that are outside the jurisdiction of the MDBC (**Recommendation 18**); and
- the Murray-Darling Basin Commission and the individual jurisdictions work to increase community understanding of their roles and responsibilities within the *Murray-Darling Basin Agreement* (**Recommendation 19**).



# **5. Implementation and Compliance**

## **5.1 Introduction**

Having looked at the:

- contribution of the Cap to the ecological sustainability of the Basin's river system;
- the economic and social impacts of the Cap; and
- issues of equity associated with the Cap,

in this component of the Review, attention is turned to implementation and compliance issues.

Managing a finite water resource is an ongoing task. In the Murray-Darling Basin, the Cap on diversions is and remains an important tool in the management of this scarce resource. In all Basin jurisdictions substantial progress has been made in the implementation of the Cap which has been the focus of much activity since its introduction in 1995.

Cap implementation is about maintaining management arrangements sufficient to ensure Cap compliance. The compliance of actual diversions with the Cap provides a singular assessment of the success of the Cap on diversions. Since 1996/97, compliance with the Cap has been assessed annually by the IAG.

The IAG was engaged in this component of the Review to:

- assess progress in implementing the Cap including impediments and constraints to full implementation; and
- address issues associated with ensuring Cap compliance covering the methodology adopted including the proposed Schedule F.

Companion Paper 4 is the complete IAG report (February 2000) on the Review of the Operation of the Cap - Implementation and Compliance. Informed by the work of the IAG and the submissions made to the Review on the draft Overview Report of the Cap Project Board, the Commission makes a number of recommendations in regard to

- Implementation (Section 5.3); and
- Compliance (Section 5.4).

The basis of cooperation throughout the Murray-Darling Basin is the *Murray-Darling Basin Agreement*. Within the *Agreement*, Schedule F – Cap on Diversions is the primary tool for defining Cap arrangements. The draft Overview Report invited comments on three changes that

were under consideration to the Schedule and the outcome of this process, part of the Implementation and Compliance component of the Review, is covered in Section 6.

Section 7 introduces the Sustainable Rivers Audit as an extension to current Cap implementation arrangements.

## **5.2 Summary of Submissions on Draft Overview Report**

The submissions received were generally supportive of the positions adopted in the draft Overview Report regarding implementation and compliance issues associated with the Cap. There was general agreement that a clear direction for the finalisation of the implementation of the Cap had been provided.

Several submissions called for the inclusion of groundwater usage in the Cap, with its exclusion referred to as the fundamental shortcoming of the Cap. Calls were made for the removal of all restrictions to water trade, though the community benefits of trade were questioned by some.

### **Implementation**

There was strong support expressed for the recommendation that a high priority be given to the development of effective computer models to determine Cap target diversions. Some respondents expressed frustration that this task had not yet been completed. Several submissions proposed that stakeholders be given access to the models to ensure an open and transparent process. Some concerns were expressed regarding the availability and validity of some data inputs to the models.

### **Compliance**

A widely held view throughout the submissions was the need for all States to comply with the Cap. Concerns were expressed that non-compliance in any part of the Basin has the potential to undermine the Cap process throughout the Basin. Several respondents called for penalties to be imposed for non-compliance. Compliance issues raised included the adverse effects on downstream users of increased diversions in Queensland, and the proposition that Victoria and South Australia still have "room to move" with their Cap arrangements. Several respondents called for the IAG to consult with stakeholders during their



annual review of Cap compliance. Throughout the submissions it was noted that at no stage should the action of one valley impact on another. This appeared to be a consistently held view, independent of other opinions expressed regarding the Cap.

### 5.3 Implementation

Substantial progress has been made toward implementation of the Cap in all jurisdictions. Further, the IAG noted that commitment to the implementation of the Cap is evident within all partner Governments to the *Murray-Darling Basin Agreement*.

A number of areas where progress can be expected in 2000 will represent a significant advance in the implementation of the Cap throughout the Basin. The Commission supports the developments in each of these areas. These are:

- management of groundwater on an integrated basis with surface water within the spirit of the Cap;
- completion of the compliance tools (computer simulation models used to determine Cap target diversions) throughout the Basin;
- introduction in each jurisdiction of an appropriate quality management system for the management of metering, monitoring and reporting data;
- development of less restrictive trading rules within and between valleys and jurisdictions; and
- development of a register of agreed Cap definitions.

The Commission views the first two of these developments as worthy of further comment.

#### ***Management of groundwater on an integrated basis with surface water within the spirit of the Cap***

The Cap on surface water diversions has put increased pressure on groundwater resources in some areas. While in some parts of the Basin increased use of groundwater should be encouraged to lower water tables, in large parts of the Basin this increased use of groundwater may lead to a depletion of this resource. Increased groundwater use also leads to reduced surface water availability by reducing baseflow and increasing losses from river channels.

Submissions addressing this area reflected a need for improved understanding and recognition of interaction between ground and surface water throughout the Basin. Many States are adopting similar sustainable yield approaches to groundwater management, and jurisdictions wish to retain associated resource management responsibilities. The Cap is not seen as the best or only means to integrate ground and surface water management and support for integrated water management through the Cap per se is mixed. A Basin approach to groundwater management that operated alongside the Cap could potentially manage variation in groundwater resource trends, and would be useful if it did not undermine jurisdictional responsibilities.

The draft Overview Report recommended the management of groundwater on an integrated basis with surface water within the spirit of the Cap. Commission and State technical expertise (represented through the Groundwater Technical Reference Group) supports the more integrated management of ground and surface waters throughout the Basin as part of the ongoing activity in each of the jurisdictions. The Commission supports a review of groundwater management throughout the Murray-Darling Basin including an investigation to identify how groundwater management practices may impact upon the integrity of the Cap in the future. The Groundwater Technical Reference Group of the Murray-Darling Basin Commission would be an appropriate forum to guide this review.

The Commission recommends that:

- groundwater be managed on an integrated basis with surface water within the spirit of the Cap (**Recommendation 20**); and
- a Murray-Darling Basin Groundwater Management Strategy be developed by the Groundwater Technical Reference Group that (**Recommendation 21**):
  - is based on jurisdictional management of groundwater through sustainable yields; and
  - includes investigations clarifying how groundwater management practices may impact upon the integrity of the Cap in the future.

#### **Effective compliance tools**

Effective tools for determining Cap compliance (computer simulation models) have not yet been developed for all valleys. The division of the

Basin into "Designated River Valleys" for Cap compliance under Schedule F along with the Cap for the ACT (still under development) suggests a total of 22 compliance tools are required throughout the Basin. There are no models finalised, and only four at a draft stage (August 2000), for the determination of the Cap in the Murray-Darling Basin. The Commission recommends that a high priority be given to the finalisation of these models.

The Commission recommends that:

- a high priority be given to the finalisation of the compliance tools (computer simulation models) to determine Cap compliance (**Recommendation 22**).

#### 5.4 Compliance at a Jurisdictional Level

The compliance of actual diversions with the Cap provides a singular assessment of the success of the Cap on diversions. The Review has found that Victoria and South Australia have complied with the Cap, while Queensland and ACT are yet to complete the establishment of their respective Caps. Nevertheless, it is apparent that in Queensland there has been significant growth in storage which will impact on the water available for alternative consumptive and environmental uses. In New South Wales, the Cap has been breached in the Barwon-Darling system, with other valleys being within Cap limits.

The findings of the IAG can be summarised as follows (see IAG Implementation and Compliance, Section 5.1):

New South Wales	Barwon-Darling in breach of the Cap.
Victoria	General compliance
South Australia	General compliance
Queensland	Cap arrangements not finalised. Substantial growth in storages and by implication diversions.
ACT	General compliance (consumption to date is likely to be below any Cap agreed upon).

The Commission reiterates the importance of achieving Cap compliance throughout the Murray-Darling Basin. Progress expected in 2000 will see further development of credible, explainable and repeatable methodologies to achieve Cap compliance. The Commission supports the efforts of the partner Governments to ensure Cap compliance in their jurisdictions.

#### 5.5 Component Summary

The Commission recognises that the management of a scarce water resource is an ongoing task. In the Murray-Darling Basin, the Cap on diversions is a central feature of this management.

The work of the IAG on the ongoing implementation of the Cap and compliance of actual diversions with Cap target diversions has provided a clear direction for the finalisation of the implementation phase of the Cap. The Commission generally supports the IAG recommendations.

The Commission supports the recommendation that groundwater be managed on an integrated basis with surface water within the spirit of the Cap and recommends further work towards this goal.

Significantly, effective compliance tools (computer simulation models used to determine Cap target diversions) have not yet been developed and the Commission recommends that a high priority be given to the finalisation of these models.

The Review has found that Victoria and South Australia have complied with the Cap, while Queensland and ACT are yet to complete the establishment of their respective Caps. Nevertheless, it is apparent that in Queensland there has been significant growth in storage which will impact on the water available for alternative consumptive and environmental uses. In New South Wales, the Cap has been breached in the Barwon-Darling system, with other valleys being within Cap limits.

The Commission supports the improved implementation of the Cap in the areas identified under the Review and reiterates the importance of compliance of actual diversions with Cap targets.



### ***Review of the Operation of the Cap — Implementation and Compliance***

The Commission recommends that:

- groundwater be managed on an integrated basis with surface water within the spirit of the Cap (***Recommendation 20***);
- a Murray-Darling Basin Groundwater Management Strategy be developed by the Groundwater Technical Reference Group

that is based on jurisdictional management of groundwater through sustainable yields and includes investigations clarifying how groundwater management practices may impact upon the integrity of the Cap in the future (***Recommendation 21***);

- a high priority be given to the finalisation of the compliance tools (computer simulation models) to determine Cap compliance (***Recommendation 22***).



## **6. Schedule F — Cap on Diversions**

### **6.1 Introduction**

The basis of cooperation throughout the Murray-Darling Basin is the *Murray-Darling Basin Agreement*. Within the *Agreement*, Schedule F – Cap on Diversions is the primary tool for defining Cap arrangements especially those concerned with assessing compliance and its consequences. The biggest single risk to the Cap is that Schedule F is undermined or that it is defined in such a way that it does not promote sensible water management. A fair, reasonable and workable Schedule F that is acceptable to all Governments is a fundamental requirement for a successful Cap.

With the intent of improving the operation of the Cap through the development of fair and meaningful compliance arrangements, the following modifications to Schedule F were recommended by the IAG in its work on the Implementation and Compliance component of the Review:

- removal of references to end-of-valley flows as a method for Cap compliance (also remove from Cap definition);
- arrangements for remedial actions in the case of Cap exceedance that should be acceptable to all jurisdictions ("to ensure that cumulative diversions are brought back into balance with the cap" - see recommendation (xiii) of the IAG and further discussion in Companion Paper 4); and
- re-setting the commencement date for accounting for diversions under the Cap to start with the 2000/01 water year (by when the majority of computer simulation models were expected to be complete).

Four of the partner Governments (NSW, VIC, SA & QLD), the Community Advisory Committee (CAC) and 65 stakeholders made submissions in July 2000 on the draft Overview Report of the Review of the Operation of the Cap. The four partner Governments, the CAC and 31 of the 65 stakeholder submissions specifically addressed the issues associated with Schedule F.

The Murray-Darling Basin Commission held its 55th meeting on 18 July 2000 in Goondiwindi, Queensland. At this meeting the Commission discussed the revision of Schedule F in light of the submissions received on the draft Overview Report on the Review of the Operation of the Cap. The submissions on the draft Overview Report that addressed the proposed revisions to

Schedule F were summarised for this meeting to assist the Commission in its deliberation on this issue.

Taking into account the outcomes of the public consultation process and the positions stated by the partner Governments, this section of the report details the outcome in regard to the three suggested modifications to Schedule F.

A revised Schedule F (see Appendix E) incorporating the outcome of the Review of the Operation of the Cap was considered at the meeting of the Murray-Darling Basin Ministerial Council on 25 August 2000 in Mildura, Victoria.

The Commission recommends that:

- the revised version of Schedule F be adopted by the Ministerial Council as a permanent part of the *Murray-Darling Basin Agreement* incorporating the changes made to the Schedule through the Review of the Operation of the Cap (**Recommendation 23**);

### **6.2 Removal of references to end-of-valley flows**

The 1999 version of the draft Schedule F made provision for a Cap to "be expressed in terms of a flow regime to be maintained at the end of a designated river valley". This provision was included at the request of the Queensland Government although, in principle, it could have been applied more widely throughout the Basin. The reasons behind the IAG's recommendation to remove references to end-of-valley flows were:

- an end-of-valley flow and the diversion from a valley are two different measures of the consumptive use in that valley (ie, the end-of-valley flow depends upon the diversion);
- the accuracy of measuring and modelling of diversions will always be much greater than the accuracy of measuring and modelling of river flows which is made difficult by the variability of river losses; and
- end-of-valley flow targets do not protect the security of supply in a valley from reduced inflows from either unregulated parts of the valley or upstream valleys.

Comments were invited on the proposal to remove references to end-of-valley flows in Schedule F as part of the public consultation period on the draft Overview Report.



The proposal received strong support from the CAC and the partner Governments with the exception of Queensland who advised that it would not agree to the removal of references to end-of-valley flows, at the very least until the completion of the Water Resource Planning Process in that State. Of the twenty four (24) Basin stakeholders who addressed this issue in their submissions, 71% were in support of the proposal and 29% were against.

The Commission discussion of the range of views expressed in the submissions explored a number of options for the resolution of this issue. The Commission therefore agreed to retain references to end-of-valley flows as an optional interim measure for Queensland alone and only until December 2002. Thus the Commission has placed a sunset provision on the use of end-of-valley flows for the purpose of assessing Cap compliance.

In line with this outcome, the Commission expectation is that Queensland will ensure compliance of diversions under the Cap on the same principles as other States from December 2002 onwards.

### **6.3 Remedial actions in case of Cap exceedance**

Much of the debate associated with the draft Schedule F has centred on the outcomes and consequences of non-compliance with the Cap. The recommendation of the IAG in its February 2000 report was that States be required "to ensure that cumulative diversions are brought back into balance with the cap" (see recommendation (xiii) of the IAG and further discussion in Companion Paper 4). The IAG believed this wording should have been acceptable to all Governments.

Again, comments were invited on this proposal for remedial action in case of Cap exceedance ("to ensure that cumulative diversions are brought back into balance with the cap") as part of the public consultation period on the draft Overview Report.

The proposed modification received the support of the CAC however a range of opinions were expressed by the partner Governments. Of the twenty nine (29) Basin stakeholders who addressed this issue in their submissions, 79% were in support of the proposal and 21% were against.

The assessment of the submissions made in regard to remedial actions in case of Cap exceedance identified the need to explicitly address the interpretation of the words "cumulative diversions are brought back into balance with the cap".

The Commission agreed on the revised arrangements for remedial actions in the case of Cap exceedance proposed by the Independent Audit Group under the Review of the Operation of the Cap ("to ensure that cumulative diversions are brought back into balance with the Cap" – Clause 17). This means cumulative diversions must be less than or equal to the cumulative cap target from the commencement date of the Register described in Clause 11(7). This was considered the most effective solution from an economic, equity and, to some extent, ecological perspective.

As described in Section 6.2, cumulative end-of-valley flows remain an optional interim measure for Queensland compliance with the Cap until December 2002 after which time compliance with the Cap in Queensland will be on the same principles as other States.

### **6.4 Commencement date for accounting for diversions under the Cap**

The commencement date for accounting for diversions under the Cap (an ongoing record of actual diversions and Cap target diversions) has been an issue associated with Schedule F. The IAG recommended in its February 2000 report that the account for diversions under Schedule F commence with the 2000/01 water year.

Again, comments were invited on this proposal as part of the public consultation period on the draft Overview Report.

Of the partner Governments, New South Wales and Victoria did not support the proposal with South Australia providing conditional support. Queensland did not support the proposal stating that the timeframe suggested was incompatible with progress being made with water resource planning in that State. The CAC supported the proposal with the condition that there be no further modifications to the starting date. Of the twenty one (21) Basin stakeholders who addressed this issue in their submissions, 38% were in support of the proposal and 62% were against.

With the benefit of the submissions provided on the draft Overview Report, the Commission considers that while, in principle, a simultaneous starting date across all jurisdictions and retention of the original announced starting date is desirable, this is not practical in all jurisdictions.

Accordingly, the Commission agreed that an effective solution is:

- the retention of the original (1997/98) starting date for New South Wales, Victoria and South Australia;
- the adoption of the original (1997/98) starting date for the Australian Capital Territory once a Cap has been determined for the ACT given:
- ACT diversions since this date are likely to be below the level of any Cap agreed upon; and
- this jurisdiction is part of the greater Murrumbidgee valley where 1997/98 has been adopted as the starting date; and
- that Cap accounting for Queensland commence upon the finalisation of Cap arrangements in that jurisdiction.

## 6.5 Summary

The most important challenge in Cap implementation is to finalise the arrangements under "Schedule F – Cap on Diversions" to the *Murray-Darling Basin Agreement*. This schedule is the primary tool for defining Cap arrangements especially those concerned with assessing compliance and its consequences. With the intent of improving the operation of the Cap through the development of fair and meaningful compliance arrangements, three modifications to Schedule F were canvassed in the draft Overview Report on the Review.

The outcome of the Review of the Operation of the Cap in regard to Schedule F is to:

### **End-of-valley flows**

- remove references to end-of-valley flows as a method for Cap compliance except for Queensland alone as an interim measure until December 2002;

### **Remedial actions in case of Cap exceedance**

- accept the arrangements for remedial actions in the case of Cap exceedance ("to ensure that cumulative diversions are brought back into balance with the cap") noting that the cumulative diversions on the Register defined in the Schedule will be used as the basis for determining Cap compliance; and

### **Commencement date for Cap accounting**

- retain 1997/98 as the water year for the commencement of accounting for diversions under the Cap for New South Wales, Victoria, South Australia and the Australian Capital Territory (as it is part of the greater Murrumbidgee valley) with Cap accounting for Queensland to commence upon the finalisation of Cap arrangements in that jurisdiction.

The revised version of Schedule F incorporating these changes is at Appendix E. The Commission fully expects the revised Schedule F will:

- lead to the more effective future operation of the Cap;
- enhance community confidence in Cap arrangements across the Basin; and
- be a major milestone in the implementation of the Cap.

### **Review of the Operation of the Cap — Schedule F – Cap on Diversions**

The Commission recommends that:

- the revised version of Schedule F be adopted by the Ministerial Council as a permanent part of the *Murray-Darling Basin Agreement* incorporating the changes made to the Schedule through the Review of the Operation of the Cap (**Recommendation 23**).





# **7. The Sustainable Rivers Audit — "The Next Step"**

## **7.1 Introduction**

The IAG noted, in their report on Implementation and Compliance, that compliance of actual diversions with Cap targets is only part of the objective of the Ministerial Council decision to introduce a Cap in that, in itself, this does not address the objective to "protect and enhance the riverine environment". With the implementation of the Cap nearing completion in most jurisdictions, the IAG identified an opportunity to take the next step and to consider the environmental outcomes of the Cap from a whole of Basin perspective.

An environmental audit of the Murray-Darling Basin, as a "mirror image" of the annual audit of implementation by the IAG, was recommended by the IAG and a regular environmental audit of the Basin's rivers, a Sustainable Rivers Audit, was proposed in the draft Overview Report.

This is consistent with the findings of the Ecological Sustainability of Rivers component of the Review. Under that component, the Commission supported a Sustainable Rivers Audit to monitor the environmental health of the Basin's rivers and to inform the community of the location and extent of degradation. This audit would cast the Cap as an input to Basin health rather than an outcome in itself and would bring into focus the effect of past and recent levels of diversion on the health of the Basin.

## **7.2 Summary of Submissions on Draft Overview Report**

The proposed Sustainable Rivers Audit was very strongly supported throughout the submissions received. The support appeared to be given both as a logical extension of the Cap, and also to allow a stronger scientific base for debate in relation to ecological, environmental and social considerations associated with water management in the Basin. The submissions also emphasised that the effects of the Cap cannot be isolated from other factors.

Respondents observed that a steering committee of appropriate representatives of each jurisdiction, and the community through the Community Advisory Committee, should be established as a matter of urgency to design and guide the audit.

## **7.3 A Sustainable Rivers Audit of the Murray-Darling Basin**

The Commission supports a regular environmental audit of the Basin's rivers, a Sustainable Rivers Audit. Whereas the Cap is seen as the first step towards achieving the longer-term objective of the Initiative, a Sustainable Rivers Audit can be viewed as the next step in the process of achieving this objective.

The Commission considers that it will be important for the audit to develop and monitor useful indicators that can be clearly understood by all sections of the Basin community. This will be best achieved through community involvement in the audit process. Also, it will be important that the audit builds upon and draw from the activities of the partner Governments and that it does not lead to any confusion with current activities in the various jurisdictions.

Since the release of the draft Overview Report, a substantial effort has gone into a scoping study for the Sustainable Rivers Audit at the direction of the Ministerial Council and further development of the Audit arrangements will take place during 2000 and 2001.

The Sustainable Rivers Audit will be an important and ongoing feature of the Commission's activities in future years.

## **7.4 Summary**

With the implementation of the Cap nearing completion in most jurisdictions, there is now the opportunity to take the "next step" and to consider the environmental outcomes of the Cap from a whole of Basin perspective.

In line with **Recommendation 6**, the Commission supports the introduction of a regular environmental audit of the Basin's rivers, a Sustainable Rivers Audit, which would cast the Cap as an input to Basin health, rather than an outcome in itself.

Whereas the Cap is seen as the first step towards achieving the longer-term objective of the Initiative, a Sustainable Rivers Audit can be viewed as the next step in the process of achieving this objective.





# APPENDIX A — Definition of the Cap in Each Jurisdiction

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## *The definition adopted for the Cap in each jurisdiction is provided below.*

Note, diversion under 1993/94 levels of development does not mean the volume of water that was used in 1993/94. Rather, the Cap in any year is the volume of water that would have been used with the infrastructure (pumps, dams, channels, areas developed for irrigation, management rules, etc.) and management rules that existed in 1993/94, assuming similar climatic and hydrologic conditions to those experienced in the year in question. Thus, the Cap provides scope for greater water use in certain years and lower use in other years.

### **New South Wales**

- The Cap is the volume of water that would have been diverted under 1993/94 levels of development.
- In the NSW Border Rivers valley, the Cap allowance for the enlarged Pindari Dam has not yet been determined (see Section 4.3).

### **Victoria**

- The Cap is the volume of water that would have been diverted under 1993/94 levels of development.
- In the Goulburn/Broken/Loddon valley, the Cap allowance for the Lake Mokoan development has not yet been determined (see Section 4.3).

### **South Australia**

- The Cap on diversions from the River Murray is defined in the following components:
- a fixed allocation of 50 GL per year for country towns;
- a five-year non tradeable rolling allocation of 650 GL over the five year period (notionally 130 GL per year) for metropolitan Adelaide; and
- an average of 524 GL per year allocation for irrigation including private, industrial, recreation, environment and stock and domestic (524 GL includes 440.6 GL pumped irrigation allocation and 83.4 GL for lower Murray swamps).

### **Queensland**

- The Cap arrangements in the Queensland component of the Murray-Darling Basin are yet to be finalised however a moratorium on issuing new diversion licences is in place.
- A description of the processes underway in Queensland to determine Cap limits for their valleys is provided in Section 4.3.

### **Australian Capital Territory**

- The Cap arrangements in the Australian Capital Territory are yet to be finalised.
- A description of the current situation in the ACT is provided in Section 4.3.



# ***APPENDIX B — Terms of Reference for the Review***

## ***Review of the Operation of the Cap***

### **Terms of Reference**

The Terms of Reference for the five-year Review of the Operation of the Cap are:

1. To review the operation of the Cap (and, importantly, not the Cap itself) and provide suggestions for the more effective future operation of the Cap through obtaining independent assessments (involving the Independent Audit Group and partner Governments to the *Initiative* as appropriate) in each of the following areas:
  - (a) **Ecological Sustainability of Rivers** through addressing the impact of the operation of the Cap in achieving its objectives to ensure ecological sustainability of the Murray-Darling Basin river system;
  - (b) **Economic and Social Impacts** by determining whether the Cap has generated significant economic and social benefits or costs;
  - (c) **Equity** by addressing issues of equity that have arisen in the process of implementing the Cap (between river valleys within States and between States); and
  - (d) **Implementation and Compliance** by assessing progress in implementing the Cap including impediments and constraints to full implementation and addressing issues associated with ensuring Cap compliance covering the methodology adopted including the proposed Schedule F.
2. To consult with:
  - (a) the Community Advisory Committee of the Murray-Darling Basin Ministerial Council (CAC);
  - (b) other stakeholders as identified by the CAC, Commission and individual jurisdictions; and
  - (c) the MDBC committee processes, as appropriate, to ensure inter-jurisdictional ownership of the outcomes of the Review and commitment of the jurisdictions to contributing to the Review.

## APPENDIX C — Submissions to the Review November 1999

No.	State	From	Overarching	Ecological Sustainability of Rivers	Economic and Social Impacts	Equity	Implementation and Compliance
1		Commonwealth Government		✓	✓	✓	✓
2		NSW Government		✓	✓	✓	✓
3		VIC Government				✓	✓
4		SA Government		✓	✓	✓	✓
5		QLD Government		✓	✓	✓	✓
6		ACT Government				✓	
7		CAC		✓	✓	✓	✓
8		MDBC Office					✓
<b>STAKEHOLDERS</b>							
1	NSW	Murray Catchment Management Committee		✓	✓	✓	✓
2	NSW	Murray Irrigation Ltd		✓	✓	✓	✓
3	NSW	Southern Riverina Irrig. Districts Council		✓	✓	✓	✓
4	NSW	Murrumbidgee River Man. Comm.		✓		✓	✓
5	NSW	Murrumbidgee Irrig., RGA & MIA CHA		✓	✓	✓	✓
6	NSW	MIA Council of Horticultural Associations		✓	✓	✓	✓
7	NSW	Hay Water Users			✓	✓	
8	NSW	Murrumbidgee Valley Lic. Pumpers' Assoc.		✓		✓	
9	NSW	Murrumbidgee Unregulated Streams Man. Comm.		✓		✓	✓
10	NSW	Coleambally Community Action	✓		✓		
11	NSW	Lachlan Valley Water			✓	✓	✓
12	NSW	Lachlan Shire Council	✓				
13	NSW	R Caldwell	✓			✓	
14	NSW	Narromine Irrigation Board of Management			✓		
15	NSW	Namoi Valley Water Users' Association		✓	✓	✓	✓
16	NSW	Namoi Groundwater MC (incl. W L Weakley)			✓	✓	
17	NSW	Gwydir Valley Irrigators Assoc		✓	✓	✓	✓
18	NSW	Twynam Pastoral Co		✓	✓	✓	✓
19	NSW	Barwon-Darling River Management Committee				✓	
20	NSW	Darling River Food & Fibre			✓	✓	✓
21	NSW	Bourke Shire Council			✓	✓	
22	NSW	Bourke Chamber of Commerce			✓		
23	NSW	Brewarrina Shire Council		✓	✓	✓	
24	NSW	Bourke Cotton Growers Association		✓	✓	✓	✓
25	NSW	Walgett Water Users Association		✓	✓	✓	✓
26	-	Inland Rivers Network		✓			✓
27	NSW	National Parks Association		✓			
28	VIC	Goulburn-Murray Water				✓	✓
29	VIC	Victorian Farmers Federation				✓	
30	VIC	Goulburn - North East - Water for Ag. - Min. Com.		✓	✓	✓	✓
31	QLD	Toowoomba & Region Greens		✓			
32	VIC	Australian Dried Fruits Association		✓	✓	✓	✓



# APPENDIX D — Submissions to the Review on the Draft Overview Report July 2000

No.	State	From	Pages	30 November 1999 Submission	Contents						
					Overarching	Ecological Sustainability of Rivers	Economic and Social Impacts	Equity	Implementation and Compliance	Schedule F	SRA
1	PARTNER GOVERNMENTS	New South Wales	31	✓		✓	✓	✓	✓	✓	✓
2		Victoria	2	✓	✓					✓	
3		South Australia	12	✓		✓	✓	✓	✓	✓	✓
4		Queensland	16	✓		✓	✓	✓	✓	✓	✓
5	CAC	Community Advisory Committee of the Murray-Darling Basin Ministerial Council	41	✓		✓	✓	✓	✓	✓	✓



## JULY 2000 STAKEHOLDER SUBMISSIONS

			Contents								
			Pages	30 November 1999 Submission	Overarching	Ecological Sustainability of Rivers	Economic and Social Impacts	Equity	Implementation and Compliance	Schedule F	SRA
No.	State	From									
1	NSW	Murray Irrigation Ltd	18	✓	✓	✓	✓	✓	✓	✓	
2	NSW	Western Murray Irrigation Limited	2	✗							
3	NSW	Moira Private Irrigation District	3	✗	✓	✓	✓	✓	✓	✓	
4	NSW	Southern Riverina Irrigation Districts Council	2	✓	✓			✓			
5	NSW	Murray Valley Water Diverters Advisory Association	✓	✗		✓	✓	✓	✓	✓	
6	NSW	Murray Lower Darling Community Reference Committee	2	✗			✓	✓	✓	✓	
7	NSW	Lower Murray-Darling Water Management Action Plan	7	✗	✓	✓	✓	✓	✓	✓	
8	NSW	West Cororgan Board of Management	6	✗		✓	✓	✓	✓	✓	
9	NSW	N McKinnon OAM, Jerilderie	3	✗	✓	✓	✓	✓			
10	NSW	W H Wells, Jingellic	6	✗	✓	✓	✓	✓	✓	✓	
11	NSW	Southern NSW Irrigators: Ricegrowers' Association of Australia; Murrumbidgee Irrigation Limited; Murray Irrigation Limited; Southern Riverina Irrigation Districts Council; Murrumbidgee Irrigation Area Council of Horticultural Associations; West Cororgan Irrigation; Murrumbidgee Licensed Pumpers; Yanco Creek Pumpers; Coleambally Irrigation; Hay Water Users; Moira Private Irrigation; Murray Valley Licensed Pumpers.	3	✓	✓	✓	✓	✓	✓	✓	
12	NSW	MIA Council of Horticultural Associations	10	✓		✓	✓	✓	✓	✓	
13	NSW	Coleambally Community Action	6	✓		✓	✓				
14	NSW	Lachlan Valley Water	6	✓		✓	✓	✓	✓		
15	NSW	Orange Region Vignerons Association & Appledale Water Users Group	9	✗	✓	✓	✓	✓			
16	NSW	R Caldwell, Forbes	11	✓	✓	✓	✓	✓	✓	✓	
17	NSW	Macquarie River Food & Fibre	10	✗	✓	✓	✓	✓	✓	✓	
18	NSW	Macquarie Cudgegong River Management Committee	1	✗							
19	NSW	Narromine Irrigation Board of Management	2	✓			✓	✓			
20	NSW	B Danson, Narrabri	6	✗	✓	✓	✓	✓	✓	✓	
21	NSW	W L Weakley, Carroll	2	✓		✓		✓			
22	NSW	Gwydir Valley Irrigators Association	17	✓	✓	✓	✓	✓	✓	✓	
23	NSW	Colonel G B McLean (RL), Guyra	2	✗	✓	✓	✓	✓			
24	NSW	Darling River Food and Fibre	20	✓		✓	✓	✓	✓	✓	
25	NSW	Mungindi-Menindee Advisory Council	6	✗	✓	✓	✓	✓	✓	✓	
26	NSW	Western Division Group of the Shires Association of NSW	6	✗	✓	✓	✓	✓	✓	✓	
27	NSW	NSW Farmers' Association	7	✗	✓	✓	✓	✓	✓		
28	NSW	Centre for Water Policy Research, University of New England	2	✗	✓	✓	✓	✓			
29	NSW	Inland Rivers Network / Nature Conservation Council of NSW	15	✓		✓	✓	✓	✓	✓	
30	VIC	Goulburn-Murray Water	2	✓	✓	✓	✓	✓	✓		
31	VIC	Murray River Action Group, VFF Barnawartha Branch, VFF Wodonga District Pastoral Council	7	✗		✓	✓	✓	✓	✓	
32	VIC	North East Catchment Management Authority	9	✗		✓	✓	✓	✓	✓	
33	VIC	Victorian High Catchment Committee	5	✗				✓			



## JULY 2000 STAKEHOLDER SUBMISSIONS

No.	State	From	Pages	30 November 1999 Submission	Contents						
					Overarching	Ecological Sustainability of Rivers	Economic and Social Impacts	Equity	Implementation and Compliance	Schedule F	SRA
34	VIC	Greater Shepparton City Council	8	✗		✓	✓	✓	✓		✓
35	VIC	First Mildura Irrigation Trust	1	✗	✓						
36	VIC	W R Baxter MLC	1	✗				✓			
37	VIC	L Jarvis, Kergunyah	7	✗		✓	✓	✓	✓	✓	✓
38	VIC	P McPherson, Benalla	8	✗		✓	✓	✓	✓	✓	
39	VIC	J H Neary, Murmungee	7	✗		✓	✓	✓	✓	✓	✓
40	VIC	C M Teek, Tallangatta	1	✗				✓			
41	VIC	B Willett, Benalla	4	✗		✓	✓	✓	✓	✓	✓
42	VIC	Australian Management Consolidated Pty Ltd	26	✗		✓	✓				✓
43	VIC	Melbourne Water Corporation	9	✗		✓	✓	✓	✓	✓	✓
44	VIC	Sunraysia Rural Water Authority	1	✗	✓			✓	✓		
45	VIC	Goulburn – North East – Regional Water Coordination Committee	8	✓		✓	✓	✓	✓	✓	✓
46	VIC	E & S Thornton, Beechworth	9	✗		✓	✓	✓			
47	SA	South Australian Farmers Federation	5	✗		✓	✓	✓	✓	✓	
48	SA	River Murray Catchment Water Management Board	1	✗	✓						✓
49	SA	South Australian Fishing Industry Council	19	✗	✓						
50	SA	Riverland West Local Action Planning Association	8	✗		✓	✓	✓	✓	✓	✓
51	SA	Berri Barmera Council	7	✗		✓	✓	✓	✓	✓	✓
52	SA	C Jones, Murray Bridge	2	✗		✓	✓	✓	✓	✓	✓
53	SA	A C Frith, Mypolonga	2	✗							
54	SA	T G Loffler, Waikerie	7	✗	✓						
55	SA	Lower Murray Private Irrigation Assoc.	2	✗	✓		✓			✓	✓
56	SA	Jubilee Almonds	1	✗	✓		✓	✓			
57	QLD / NSW	Border Rivers Food & Fibre	12	✗	✓	✓	✓	✓	✓	✓	✓
58	QLD	Inglewood Shire	10	✗	✓		✓	✓	✓		
59	ACT	Australian Local Government Association	7	✗		✓	✓	✓	✓	✓	✓
60	ACT	Rural Funds Management Ltd	11	✗		✓	✓	✓	✓	✓	✓
61	-	CSIRO Land and Water, Griffith	7	✗		✓	✓	✓	✓	✓	✓
62	-	Great Artesian Basin Advisory Committee (GABAC)	1	✗							
63	-	Australian Federation of University Women	2	✗	✓						
64	-	Groundwater Technical Reference Group of the MDBC	5	✗							
65	-	Australian Conservation Foundation (ACF)	7	✗		✓	✓	✓	✓	✓	✓

# ***APPENDIX E — Schedule F – Cap on Diversions***

This Appendix contains the full text of “Schedule F – Cap on Diversions” to the *Murray-Darling Basin Agreement*. This is the Schedule agreed upon by the Murray-Darling Basin Ministerial Council at Meeting 29 – 25 August 2000.

## ***Schedule F — Cap on Diversions***

### **Purposes**

1. The purposes of this Schedule are:
  - (a) to establish long-term diversion caps from rivers within the Murray-Darling Basin, in order to protect and enhance the riverine environment; and
  - (b) to set out action to be taken by the Ministerial Council, the Commission and State Contracting Governments to quantify and comply with annual diversion targets; and
  - (c) to prescribe arrangements for monitoring and reporting upon action taken by State Contracting Governments to comply with annual diversion targets.

### **Definitions**

2. In this Schedule, except where inconsistent with the context:

“**baseline conditions**” means the level of water resource development for rivers within the Murray-Darling Basin as at 30 June 1994 determined by reference to:

- (a) the infrastructure supplying water; and
- (b) the rules for allocating water and for operating water management systems applying; and
- (c) the operating efficiency of water management systems; and
- (d) existing entitlements to take and use water and the extent to which those entitlements were used; and
- (e) the trend in the level of demand for water within and from the Murray-Darling Basin

at that date.

“**designated river valley**” means a river valley or water supply system referred to in, or designated under, sub-clause 3(1).

“**historical data**” means data relevant to the period from 1 July 1983 to 30 June 1994, or such other period as the Commission may from time to time determine.

“**Register**” means the Register referred to in sub-clause 11(7).

“**river valley**” means a river valley within the Murray-Darling Basin referred to in sub-clause 3(2).

“**water year**” in relation to a river valley or a water supply system means the relevant 12 month period applicable to the allocation of water entitlements and measurement of diversions in that river valley or water supply system.

### **River Valleys and Designated River Valleys**

3. (1) Subject to sub-clause 3(3), the river valleys or water supply systems listed at Schedule 1 are “designated river valleys” for the purposes of this Schedule.
- (2) Subject to sub-clause 3(3), the river valleys listed at Schedule 2 are “river valleys” for the purposes of this Schedule.
- (3) The Ministerial Council may, from time to time, on the recommendation of the Commission:
  - (a) amend the description of:
    - (i) any designated river valley described in Schedule 1; or
    - (ii) any river valley in Schedule 2;
  - (b) designate, for the purposes of this Schedule, any river valley or water supply system not referred to in Schedule 1; or
  - (c) add any river valley to those set out in Schedule 2.



#### **Long-term diversion cap for New South Wales**

4. (1) The Government of New South Wales must ensure that diversions within each designated river valley in New South Wales do not exceed diversions under baseline conditions in that designated river valley, as determined by reference to the model developed under sub-clause 9(4).
- (2) In calculating baseline conditions for the Border Rivers, allowance must be made for such annual volume as the Ministerial Council may, from time to time, determine in view of the special circumstances applying to Pindari Dam.

#### **Long-term diversion cap for Victoria**

5. (1) The Government of Victoria must ensure that diversions within each designated river valley in Victoria (including the upper River Murray) do not exceed diversions under baseline conditions in that designated river valley, as determined by reference to the model developed under sub-clause 9(4).
- (2) In calculating baseline conditions for the Goulburn/Broken/Loddon and/or the Murray Valley water supply systems, allowance must be made for an additional 22 GL per year, or such other annual volume as the Ministerial Council may, from time to time, determine in view of the special circumstances applying to Lake Mokoan.

#### **Long-term diversion cap for South Australia**

6. (1) The Government of South Australia must ensure that diversions from the River Murray within South Australia:
  - (a) for water supply purposes delivered to Metropolitan Adelaide and associated country areas through the Swan Reach-Stockwell, Mannum-Adelaide and Murray Bridge-Onkaparinga pipeline systems do not exceed a total diversion of 650 GL over any period of 5 years;

- (b) for Lower Murray Swamps irrigation do not exceed 83.4 GL per year;
- (c) for water supply purposes for Country Towns do not exceed 50 GL per year; and
- (d) for all other purposes do not exceed a long-term average annual diversion of 440.6 GL.

- (2) Subject to sub-clause 6(3), the Ministerial Council may alter the annual diversion cap set out in:

- (a) paragraph 6(1)(b) after considering a submission from the Government of South Australia on the 1993/94 level of diversions for the purposes referred to in that paragraph; and
- (b) paragraph 6(1)(c) after considering the outcome of modelling studies.

- (3) The Ministerial Council may only alter an annual diversion cap under sub-clause 6(2) in order to represent more accurately diversions under baseline conditions.

- (4) The Government of South Australia must ensure that no part of any entitlement created in South Australia with respect to the diversion referred to in paragraph 6(1)(a) is either used, or transferred for use, for any purpose other than use in Metropolitan Adelaide and associated country areas, unless the Ministerial Council determines otherwise.

- (5) If the Government of South Australia supplies any of the diversions referred to in paragraph 6(1)(d) through the Swan Reach-Stockwell, Mannum-Adelaide and Murray Bridge-Onkaparinga pipeline systems in any year, it must:

- (a) record the volume of water so delivered for that purpose in that year; and
- (b) account for that volume against the long-term average annual diversion referred to in paragraph 6(1)(d), when monitoring and reporting to the Commission under clause 11.

### **Long-term diversion cap for Queensland**

7. (1) The Government of Queensland must ensure that diversions from each designated river valley in Queensland do not exceed such long-term diversion caps as may be fixed by the Ministerial Council on the recommendation of the Commission.
- (2) Until December 2002 –
  - (a) a long-term diversion cap fixed under sub-clause 7(1) may be expressed in terms of a long-term pattern of flow to be maintained at the end of a designated river valley; and
  - (b) if the long-term diversion cap is so expressed, in order to determine whether the cap has been complied with in Queensland:
    - (i) the expressions “diversion” or “diversions” occurring in clauses 9-17 must be read as if they referred to “end-of-valley flow” or “end-of-valley flows” respectively; and
    - (ii) the expression “credit” in paragraph 11(8)(b) must be read as if it referred to “debit”; and
    - (iii) the expression “debit” in paragraph 11(8)(c) must be read as if it referred to “credit”.
- (3) On or before 30 June 2000, the Government of Queensland will prepare and publish water management plans and water allocation management plans for all river valleys in Queensland.
- (4) After considering the plans referred to in sub-clause 7(3), the Commission must make the recommendations referred to in sub-clause 7(1).

### **Power of Ministerial Council to alter long-term diversion caps**

8. A long-term diversion cap referred to in clause 4, 5, 6 or 7 from time to time:
  - (a) must be altered by the Commission, to reflect the result of trading water entitlements within a State or between States; and
  - (b) may be altered by the Ministerial Council, on the recommendation of the Commission, for any other reason.

### **Developing Analytical Models**

9. (1) The Commission must develop analytical models for determining the annual diversion targets for the upper River Murray.
- (2) Subject to sub-clause 9(1), the Governments of New South Wales, Victoria and Queensland must each develop analytical models for determining the annual diversion target for each designated river valley within the territory of that State.
- (3) The Government of South Australia must develop analytical models for determining the annual diversion target for diversions referred to in paragraph 6(1)(d).
- (4) An analytical model developed under this clause:
  - (a) must simulate the long-term diversion cap in the relevant designated river valley; and
  - (b) must be tested against relevant historical data to determine the accuracy of the model in estimating the annual diversion; and
  - (c) must be approved by the Commission before it is used to determine an annual diversion target under this Schedule; and
  - (d) may, from time to time, be modified in such ways as the Commission may approve; and



(e) must be used to determine the average annual diversion under the conditions of the relevant long-term diversion cap determined under clause 4, 5, 6 or 7 for either:

(i) the period between the start of the 1891 water year and the end of the 1997 water year; or

(ii) such a lesser period as may be approved by the Commission.

(5) The Commission may only approve an analytical model or a modification to an analytical model if the Commission considers that the model, when approved or modified, will fairly determine the relevant annual diversion target given the climatic conditions experienced in any year.

#### Calculation of annual diversion targets

10. (1) Within two months after the end of the relevant water year and using the analytical models developed and approved under clause 9:

(a) the Commission must calculate the annual diversion targets for New South Wales and Victoria for that year for the upper River Murray; and

(b) subject to paragraph (a), the Governments of New South Wales, Victoria, South Australia and Queensland must, for each designated river valley within the territory of that State, calculate the annual diversion target for that year.

(2) The Commission must promptly inform the Governments of New South Wales and Victoria of the results of every calculation made under paragraph 10(1)(a) with respect to the upper River Murray.

(3) The Government of New South Wales, Victoria, South Australia and Queensland, respectively, must each promptly inform the Commission of the results of every calculation made by it under paragraph 10(1)(b).

#### Monitoring and Reporting

11. (1) Each State Contracting Government must, for each water year and in relation to each river valley specified in Schedule 2 within its territory, monitor and report to the Commission upon:

(a) diversions made within and to; and

(b) water entitlements, announced allocations of water and declarations which permit the use of unregulated flows of water within; and

(c) trading of water entitlements within, to or from

the territory of that State in that water year.

(2) Each State Contracting Government must, for each water year and in relation to each designated river valley within its territory, monitor and report to the Commission upon:

(a) the compliance by that State with each relevant annual diversion target calculated under this Schedule for that water year; and

(b) such actions which the State proposes to take to ensure that it does not exceed the annual diversion targets calculated under this Schedule for every ensuing water year.

(3) For the purpose of sub-clauses 11(1) and (2) the expression "river valley within its territory" in relation to Victoria, includes that portion of the upper River Murray forming the border between Victoria and New South Wales.

(4) A report under sub-clause 11(1) or (2) must be given to the Commission within two months of the end of each relevant water year or by such other time as the Commission may determine.

(5) On the basis of the calculations referred to in sub-clause 10(1) and reports given to it under sub-clauses 11(1) and (2) the Commission:

- (a) must, in relation to each State Contracting Government, produce a water audit monitoring report which includes information about that Government's compliance with the annual diversion target calculated for each designated river valley in the territory of that State and for the whole of the State in the relevant water year; and
  - (b) may publish any such report, or a summary thereof, in such manner as it may determine.
- (6) A water audit monitoring report under sub-clause 11(4) must be produced by 31 December following the conclusion of each relevant water year, or by such other time as the Commission may determine.
- (7) The Commission must maintain a Register which records:
- (a) for each designated river valley; and
  - (b) for each State,
- the cumulative difference between actual annual diversions and the annual diversion targets calculated under this Schedule.
- (8) The Register must:
- (a) include information about every water year concluding after:
    - (i) 1 November 1997 for each State other than Queensland; and
    - (ii) for Queensland, a date determined by the Ministerial Council when it fixes long-term diversion caps under sub-clause 7(1); and
  - (b) if cumulative actual diversions for any designated river valley or for any State are less than the cumulative annual diversion targets calculated under this Schedule, as the case requires, record the difference as a credit; and

- (c) if cumulative actual diversions for any designated river valley or for any State are greater than the cumulative annual diversion targets calculated under this Schedule, as the case requires, record the difference as a debit.

- (9) The Commission must include a report on the operation of this Schedule in any report made to the Ministerial Council under clause 84 of the *Agreement*.

#### **Appointment of Independent Audit Group**

- 12. The Commission must appoint an Independent Audit Group for the purpose of this Schedule.

#### **Annual audit by the Independent Audit Group**

- 13. (1) The Independent Audit Group must, until 31 December 2004, annually audit the performance of each State Contracting Government in implementing the long-term diversion cap in each water year which concludes on or between 1 June 1999 and 1 November 2004.
- (2) The Commission may direct the Independent Audit Group to audit the performance of any State Contracting Government in implementing the long-term diversion cap in any water year concluding after 1 November 2004.
- (3) The Independent Audit Group must report to the Commission on any audit conducted under this clause.

#### **Power to require a special audit of a designated river valley**

- 14. If, after receiving a report from a State Contracting Government under sub-clause 11(2) for any year, the Commission calculates that either:
  - (a) the diversion for water supply to Metropolitan Adelaide and associated country areas over the last five years has exceeded 650 GL; or



- (b) the cumulative debit recorded in the Register exceeds 20% of the average annual diversion determined under paragraph 9(4)(e) for a particular designated river valley within that State,

the Commission must direct the Independent Audit Group to conduct a special audit of the performance of that State Contracting Government in implementing the long-term diversion cap in the relevant designated river valley.

#### **Special audit by Independent Audit Group**

15. (1) In conducting a special audit under clause 14, the Independent Audit Group must consider:
  - (a) data on diversions and annual diversion targets recorded on the Register; and
  - (b) data submitted by the relevant State Contracting Government, including, for example, data about areas under irrigation, storage capacities, crop production, irrigation technology and the conjunctive use of groundwater in the designated river valley; and
  - (c) the impact that policies implemented by the State Contracting Government may have on the expected pattern of annual diversions; and
  - (d) whether the diversion for all years on the Register exceeds the diversion expected under the long term diversion cap for those years, and
  - (e) any other matter which the Independent Audit Group considers relevant.
- (2) The Independent Audit Group must:
  - (a) determine whether the long-term diversion cap has been exceeded in the designated river valley; and
  - (b) report to the Commission on the special audit and advise the Commission of its determination within six months after a direction given under clause 14.

#### **Declaration that diversion cap has been exceeded**

16. If the Commission receives a report under

sub-clause 15(2) which determines that a State has exceeded the long-term diversion cap in a designated river valley, the Commission must:

- (a) forthwith declare that the State has exceeded the Murray-Darling Basin diversion cap; and
- (b) report the matter to the next meeting of the Ministerial Council.

#### **Advice to Ministerial Council on remedial actions**

17. (1) The Government of a State referred to in sub-clause 16(a) must report to the next Ministerial Council after a declaration is made under that sub-clause, setting out:
  - (a) the reasons why diversions exceeded the Murray-Darling Basin diversion cap; and
  - (b) action taken, or proposed to be taken by it to ensure that cumulative diversions recorded in the Register are brought back into balance with the cap; and
  - (c) the period within the relevant model referred to in clause 9 predicts that the cumulative diversions recorded in the Register will be brought back into balance with the cap.
- (2) The Government of a State that has been required to report to the Ministerial Council under sub-clause 17(1) must report to each subsequent meeting of the Ministerial Council on action taken, or proposed to be taken by it to ensure that cumulative diversions recorded in the Register are brought back into balance with the cap, until the Commission revokes a declaration pursuant to sub-clause 17(3).
- (3) When the Commission is satisfied that a State in respect of which a declaration has been made under paragraph 16(a) has brought the cumulative diversions recorded in the Register back into balance with the cap and is once more complying with the Murray-Darling Basin diversion cap in all respects, it must:
  - (a) revoke the declaration; and
  - (b) report that fact to the next meeting of the Ministerial Council.



## **Schedule 1**

### **Designated River Valleys**

#### **1. New South Wales**

The New South Wales portion of the Border Rivers.

The New South Wales portion of the following river valleys

Moonie, Big Warrambool, the Culgoa/Birrie/Bokhara/Narran water supply system, Warrego, Paroo.

Gwydir.

Namoi.

The Macquarie/Castlereagh/Bogan water supply system.

The Barwon/Upper Darling water supply system and the Lower Darling from the furthest upstream reach of the Menindee Lakes to the furthest upstream reach of the Wentworth Weir Pool.

Lachlan.

Murrumbidgee.

The New South Wales portion of the Murray Valley including the portion of the Lower Darling influenced by the Wentworth Weir Pool.

#### **2. Queensland**

The Condamine/Balonne water supply system.

The portion of the Border Rivers in Queensland.

The portion of the Moonie in Queensland.

The portion of the Warrego in Queensland.

The portion of the Paroo in Queensland.

#### **3. Victoria**

The Goulburn/Broken/Loddon water supply system.

Campaspe

The Wimmera/Mallee water supply system.

The Victorian portion of the Murray Valley including the Kiewa and Ovens.

#### **4. South Australia**

The pumps on the Murray within South Australia used to supply Metropolitan Adelaide and associated country areas.

Lower Murray Swamps irrigation.

Country Towns water use.

All other uses of water from the Murray within South Australia.

#### **5. In this Schedule, "Border Rivers" has the same meaning as in the Border Rivers Agreement between New South Wales and Queensland.**



## **Schedule 2**

### **River Valleys**

#### **1. New South Wales**

The portion of the Border Rivers in New South Wales.

The portion of the Moonie in New South Wales.

The portion of the Big Warrambool in New South Wales.

The portion of the Culgoa/Birrie/Bokhara/Narran water supply system in New South Wales.

The portion of the Warrego in New South Wales.

The portion of the Paroo in New South Wales.

Gwydir.

Namoi.

The Macquarie/Castlereagh/Bogan water supply system.

The Barwon/Upper Darling water supply system.

Lower Darling from the furthest upstream reach of the Menindee Lakes to the furthest upstream reach of the Wentworth Weir Pool.

Lachlan.

Murrumbidgee.

The New South Wales portion of the Murray Valley including the portion of the Lower Darling influenced by the Wentworth Weir Pool.

#### **2. Queensland**

The Condamine/Balonne water supply system.

The portion of the Border Rivers in Queensland.

The portion of the Moonie in Queensland.

The portion of the Warrego in Queensland.

The portion of the Paroo in Queensland.

#### **3. Victoria**

Kiewa.

Ovens.

Goulburn.

Broken.

Campaspe.

Loddon.

Wimmera/Mallee

The Victorian portion of the Murray Valley.

#### **4. South Australia**

The pumps on the Murray within South Australia used to supply Metropolitan Adelaide and associated country areas.

Lower Murray Swamps irrigation.

Country Towns water use.

All other uses of water from the Murray within South Australia.

#### **5. In this Schedule, "Border Rivers" has the same meaning as in the Border Rivers Agreement between New South Wales and Queensland.**

