Murray-Darling Basin Commission

Annual Report 2000-2001

To the Parliaments of the Commonwealth of Australia, New South Wales, Victoria, South Australia and Queensland; the Legislative Assembly of the Australian Capital Territory; and to the Australian Community

The Report includes the annual report of the Community Advisory Committee

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Office of the President
MDBC: RG:jya

MURRAY-DARLING BASIN COMMISSION

31 December 2001

The Hon Warren Truss MP
Minister for Agriculture, Fisheries and Forestry
Parliament House
CANBERRA ACT 2600

Dear Minister

In accordance with clause 84(1) of the *Murray-Darling Basin Agreement 1992*, I submit our annual report and financial statements covering the year ended 30 June 2001 for tabling before the Parliaments of the Commonwealth, New South Wales, Victoria, South Australia and Queensland, and the Legislative Assembly of the Australian Capital Territory.

I commend the 2000-2001 Annual Report to the five Parliaments and the Legislative Assembly, and I look forward to the Partner Governments continuing support of the Murray-Darling Basin *Initiative*.

Yours sincerely

R M Green

ROY GREEN
President

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Contents

List of tables

About this report

This report describes the objectives and significant achievements of the Murray-Darling Basin Commission during the 2000-01 financial year. Through the Murray-Darling Basin Ministerial Council it is presented for tabling before the parliaments of the Commonwealth, New South Wales, Victoria, South Australia, Queensland and the Legislative Assembly of the Australian Capital Territory.

This tabling process has been developed to meet the requirements of the *1992 Murray-Darling Basin Agreement* which has been incorporated into legislation passed by each of the parliaments with jurisdiction in the Basin. (The Australian Capital Territory's involvement is through a memorandum of understanding.) The Commission is therefore a unique organisation, 'owned' by the six governments. It was created because the six governments wanted an organisation that transcends the political boundaries between the Basin States and the Australian Capital Territory so that the far-reaching Murray-Darling river catchments may be managed as effectively as possible.

The Commission has a role in undertaking works and measures at the direction of the Ministerial Council and also in coordinating the efforts of the government partners to the *Murray-Darling Basin Initiative*. This annual report focuses primarily on those activities that the Commission has carried out on behalf of the Ministerial Council in 2000-01. Information on the 2000-01 activities of the partners to the *Initiative* will be available through the States' annual reports to the Commission and the Ministerial Council, expected to be provided by early 2002.

This annual report also incorporates the annual report of the Ministerial Council's Community Advisory Committee, the primary community body advising the Ministerial Council on natural resources management issues in the Murray-Darling Basin.

This year's annual report differs from those of earlier years in that it reports against the key performance areas established by the Commission's corporate plan, which was approved by the Commission in August 2000.

Chief Executive's Overview

After a decade of promoting an integrated catchment management (ICM) approach to natural resource management the Ministerial Council took stock during 2000-01. Its review confirmed that we must regard integrated catchment management as fundamental if we want to achieve sustainable natural resources management in the Basin. Reflecting this, the ICM Policy Statement was developed with substantial community involvement and support and was adopted by Council. It focuses on community participation and targets for catchment management and will provide a solid foundation for the next decade of natural resources management. The release of the Basin Salinity Management Strategy, due in early 2001-02, will be the first to include targets as specified in the new ICM approach.

Achievements

- By the end of June the content of the Basin Salinity Management Strategy was finalised. Among other things this comprehensive approach to salinity management in the Basin identifies key research matters that require attention and establishes targets for the 21 river basins. The Strategy will cover both point and diffuse salinity and incorporate the Salinity & Drainage Strategy which has been in place since 1989.

- The Commonwealth Government announced the formation of the National Action Plan on Salinity and Water Quality. This Plan has been developed to take account of Basin strategies. The Commission will work with governments to ensure integration where this is necessary.

- The Commission continued to develop the concept of a Vegetation Bank to support implementation of the Basin Salinity Management Strategy. It will be further developed during 2001-02 as a possible delivery mechanism for public funding that leverages private investment to support targeted revegetation in the Basin.

- The Murray-Darling 2001 Program under the Natural Heritage Trust continued to support on-ground activity. A total of $76.5 million (50% from the Commonwealth and 50% from the Basin States) was invested in projects in the Basin. This program has been the corner-stone of efforts to achieve on-ground change to sustain the Basin's natural resource base. It is scheduled to wind-down during 2001 and 2002 and negotiations are currently underway between governments on what will be developed to replace it.

- The Pilot Interstate Water Trade trading process went into its third year with a total of 13,701 megalitres being permanently traded between the States in accordance with specific conditions to ensure environmental protection.

- Water allocations from the River Murray were at high levels. However, although the carryover in the Commission's major storages was at reasonable levels, most of the carryover water belonged to Victoria. If dry conditions persist in the late winter and spring then allocations to New South Wales will be limited.

- Large scale construction work continued at Hume Dam. The program to ensure the dam's long term safety and integrity was almost completed. Major works also commenced at Yarrawonga Weir to improve its resistance to earthquake loadings.

- A substantial program commenced to determine the environmental flow regime for the River Murray. An Expert Reference Panel was established to advise the Ministerial Council on environmental matters for the River Murray. Council also took the decision to appoint an Environmental Manager for the River Murray; this is a new and exciting initiative designed to manage water allocated for environmental purposes along the river.

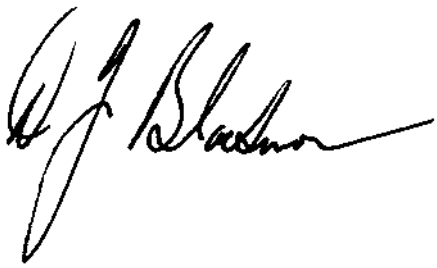
- The Commission released water from Hume Dam to sustain flooding in the Barmah-Millewa Forest. This measure was successful in supporting water bird breeding, promoting tree growth and other environmental values. The opportunity was also taken to release water from Lake Victoria to enhance flooding of the lower Murray and improve the riverine environment in that region. We can expect more activities focused on enhancing environmental improvement over coming years.

- Work continued on the development of a Native Fish Management Strategy. Council approved the installation of fishways over the next 5-10 years which will open the River Murray to fish migration from the sea to Hume Dam.

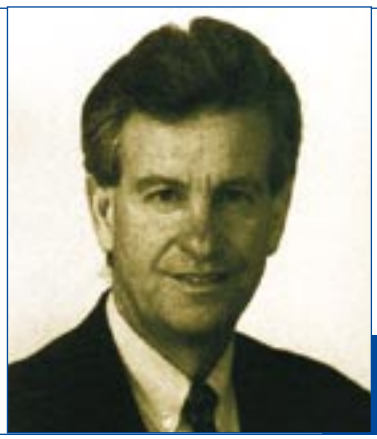
- The Murray Mouth was again under environmental stress as a result of prolonged periods of low flow. The evidence indicates that this will be an ongoing feature of the River Murray that will require careful management. The risks to the Coorong are significant.

It was pleasing to work with the Community Advisory Committee as they undertook their tasks to advise Council on natural resource management issues in the Basin. I compliment the CAC on its activities and energy and welcome the prospect of continued cooperation in the coming years.

Finally I would like to compliment the staff of the Commission who continue to improve their skills and show undiminished commitment in support of the *Initiative*. They have my personal thanks and I look forward to working with them and all associated with the *Initiative*, in the future.



DON BLACKMORE
Chief Executive



Chapter 1

The Murray–Darling Basin Initiative

The *Murray-Darling Basin Initiative* is the partnership between the six governments and the community which has been established to give effect to the *1992 Murray-Darling Basin Agreement*. The purpose of the *Agreement* is:

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

In its early years the *Initiative* focussed on promoting the principles of integrated catchment management and the development of joint community and government structures. These have remained key mechanisms for working to achieve sustainable use of the Basin's natural resources. More recently emphasis has been placed on the development and implementation of strategic, large scale integrated catchment management plans, concentrating resources in the areas of greatest need, and establishing an integrated catchment management framework that will help governments and communities to better address issues such as dryland salinity over the next decade.

The *Initiative* brings together communities and the governments of the Commonwealth, New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory. The overall governance of the *Initiative* is shown in Figure 1 and described in the following sections.

1.1 Ministerial Council

The Murray-Darling Basin Ministerial Council is the primary body responsible for providing the policy and direction needed to implement the *Murray-Darling Basin Initiative*. The Council's main functions are to consider and determine major policy issues concerning the use of the Basin's land, water and other environmental resources, and to develop, consider and authorise (as appropriate) measures to achieve the purpose of the *Agreement*.

The Ministerial Council comprises the Ministers holding land, water and environment portfolios within the governments of New South Wales, Victoria, South Australia, Queensland and the Commonwealth. Up to three Ministers from each government may sit on the Council. The Australian Capital Territory participates in the *Initiative* via a memorandum of understanding. The memorandum allows the ACT to take part in planning and management of Basin environmental resources, but not to be involved in water management of the River Murray system. The memorandum provides for an ACT Government minister to be a non-voting member of the Ministerial Council.

The names of members of the Ministerial Council are shown in appendix A.

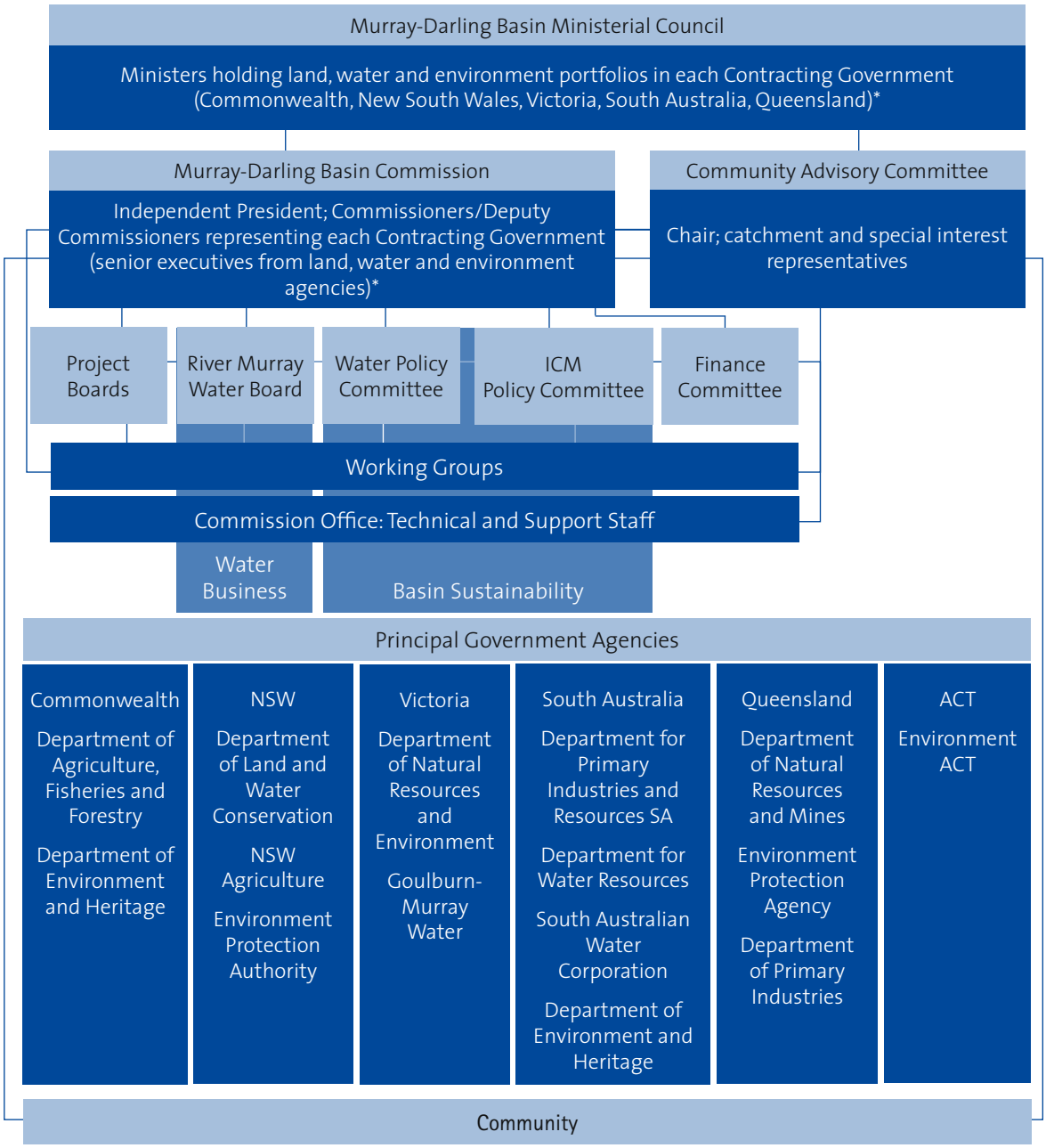


Figure 1 Governance of the Murray-Darling Basin Initiative

*Participation of the Australian Capital Territory is via a memorandum of understanding (see section 1.1)

1.2 Community Advisory Committee

The Community Advisory Committee (CAC) is an integral part of the *Initiative* and reflects the importance of the community-government partnership. At its first meeting in 1986 the Ministerial Council established the CAC to advise the Council and to provide a two-way channel of communication between the Council and the Basin community. This decision was based on the Ministers' earlier recognition of the need for "effective community participation in the resolution of the water, land and environmental problems in the Basin".

The terms of reference of the CAC are to advise the Ministerial Council and Commission on:

- natural resources management issues referred to CAC by the Ministerial Council or Commission; and
- the views of the Basin's communities on matters identified by the CAC as being of concern.

The CAC comprises a Chairman and 26 members. Twenty-one members are state representatives chosen on a catchment or regional basis - seven from New South Wales, five from Victoria, four from South Australia, four from Queensland and one from the Australian Capital Territory. Additionally there is a representative from each of four special interest 'peak organisations', and an appointee to provide an Aboriginal perspective on natural resources management issues.

The CAC works closely with the Ministerial Council and Commission, with the CAC Chair attending all their meetings. CAC members also participate in a wide range of Commission committees and working groups.

The names of the members of the Community Advisory Committee during the year are listed in appendix B.

The Committee's contribution is discussed in detail in chapter 2 and an overview of its involvement in section 5.2.

1.3 The Commission

The Murray-Darling Basin Commission is the executive arm of the Ministerial Council and is responsible for managing the River Murray and the Menindee Lakes system of the lower Darling River, and for advising the Ministerial Council on matters related to the use of the water, land and other environmental resources of the Murray-Darling Basin.

The Commission is responsible for:

- advising the Ministerial Council in relation to the planning, development and management of the Basin's natural resources;

- assisting Council in developing measures for the equitable, efficient and sustainable use of the Basin's natural resources;
- coordinating the implementation of these measures where it is directed by Council; and
- giving effect to any policy or decision of the Ministerial Council.

In meeting its responsibilities, the Commission had dual functions. The first is developing a Basin-wide framework for the sustainable management of the Basin's water, land and other environmental resources. The second function is participating in the *Initiative* through operating the River Murray system and managing and/or coordinating Basin-wide policy, planning and knowledge generation activities.

The Commission comprises an independent President, two Commissioners from each Contracting Government and a representative of the ACT Government. Apart from the President, Commissioners are normally chief executives and senior executives of the agencies responsible for stewardship of land, water and the environment. The memorandum of understanding for the participation of the ACT Government (see section 1.1) provides for a non-voting "representative" from the Territory to participate in meetings of the Commission. The Chair of the Community Advisory Committee also attends all Commission meetings.

Names of members of the Commission are shown in appendix C.

Achieving an outcome of equitable, efficient and sustainable use of the Basin's environmental resources requires coordinated effort by the six governments which are partners to the *1992 Murray-Darling Basin Agreement* and close cooperation with the Basin community. The Commission actively supports a government-community partnership and relies on it to implement effective natural resources planning and management in the Basin. This cooperative approach brings to participants and end-users the benefit of shared concerns and expertise, jointly developed and integrated solutions, and avoids duplication of effort.

In August 2000 the Commission approved its Corporate Plan for the period 2000-01 to 2002-03. This annual report addresses the performance indictors agreed in the Corporate Plan against four output areas. Commission activities and performance are reported in this report as follows:

- Water Business–chapter 3;
- Natural Resources Business–chapter 4;
- Partner Relations–chapter 5;
- Business Administration–chapter 6.

Through its Corporate Plan, the Commission also agreed to adopt the values it developed with the CAC to guide the way it operates. The Commission's values statement is shown in the box.

Murray-Darling Basin Commission Values

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

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

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

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

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

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

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

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

The Commission's Office provides technical, policy formulation, secretariat and administrative services required to administer the *Agreement* and help deliver the Commission's outputs. It is responsible for coordinating the implementation of the Commission's Natural Resources Management Strategy, the Basin Sustainability Plan, and the new Integrated Catchment Management policy. The Office includes River Murray Water, the management unit responsible for Water Business (see chapter 3).

1.4 Policy and program implementation to achieve outputs

Policies and programs of the Ministerial Council and the Commission are implemented by the Chief Executive of the Commission Office and by Commissioners representing the partner governments. In 2000-01 the Commission's programs were supported by funds from the Contracting Governments in proportions approved by the Ministerial Council, as shown in chapter 6 (section 6.1). Funds are allocated to States for agreed *Initiative* programs in accordance with estimates approved by the Ministerial Council.

The Commission has delegated to the Chief Executive those expenditure, employment and contracting powers necessary to operate the Commission Office. Commissioners representing the partner governments have delegated powers from the Commission to approve expenditure of designated funds consistent with the *Murray-Darling Basin Agreement*.

Water Business

The Commission has delegated to the General Manager, River Murray Water, appropriate powers for water and asset management, assigned to River Murray Water under its Operating Authority. In exercising the delegated powers, the General Manager must consult with the River Murray Water Advisory Board and the relevant government authorities, particularly in relation to policy matters.

The 2000-01 output based budget allocations for water business against key performance areas/sub-outputs are shown in Table 1.

Table 1 Water Business budget allocations

	$(000's)
Water storage and supply	34,238
River Salinity Mitigation	6,409
Navigation Services	3,264
Other Services (including hydro-power and recreation)	81
TOTAL	43,992

Natural Resources Business, Partner Relations and Business Administration

The 2000-01 output based budget allocations for Natural Resources Business, Partner Relations and Business Administration against key performance areas/sub-outputs are shown in Table 2.

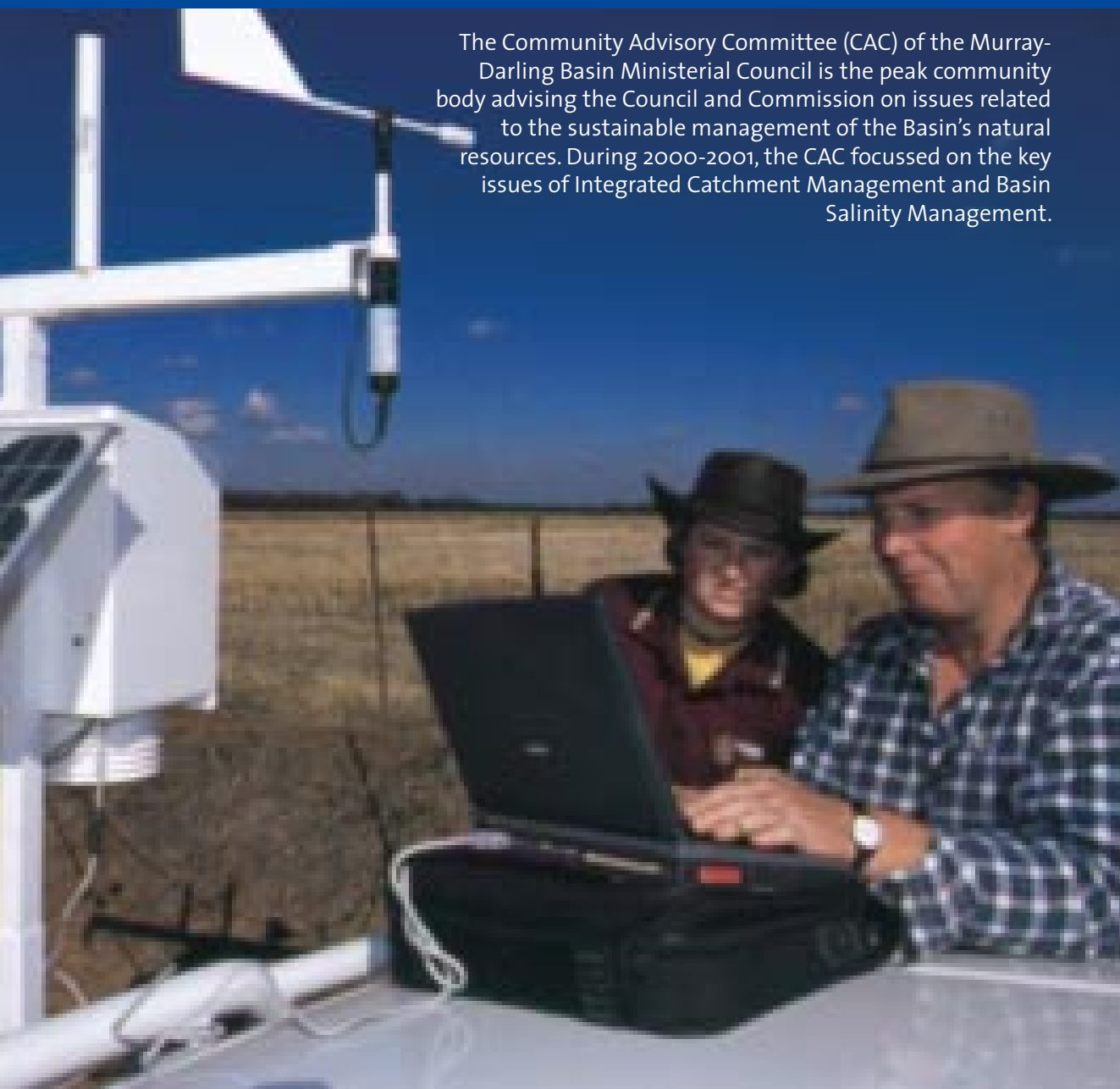
Table 2 Budget allocations for Natural Resources Business, Partner Relations and Business Administration.

Natural Resources Business	**$(000's)**
Integrated Catchment Management	2,195
Land and Water Management	14,670
Supporting On-ground Implementation	125
Monitoring Natural Resources Condition	400
Partner Relations	
Services to partners; Services to Council	655
Business Administration	
People management	510
Business Systems and Financial Administration	1,015
TOTAL	**19,570**

Chapter 2

Report of the Community Advisory Committee

The Community Advisory Committee (CAC) of the Murray-Darling Basin Ministerial Council is the peak community body advising the Council and Commission on issues related to the sustainable management of the Basin's natural resources. During 2000-2001, the CAC focussed on the key issues of Integrated Catchment Management and Basin Salinity Management.



Strategic Issues

The CAC's Work Plan, approved in early 2001, has a two-tiered approach: Current Issues, based primarily on the previous work program and other on-going activities; and, emerging issues, being those issues that are just developing at a Basin-level.

The Work Plan complements the Murray-Darling Basin Commission's Corporate Plan, reflecting a commonality of concerns and issues. Also, it acknowledges that this complementarity provides opportunities for community input to a broad range of issues at both the strategic and the operational levels.

CAC Work Plan Priorities

Current Issues

i) Integrated Catchment Management implementation, including:
- Development of performance indicators for integrated catchment management
- Implementation of the National Action Plan for Salinity and Water Quality
- Implementation of the Human Dimension Strategy, including community capacity building, leadership development, and process and accountability mechanisms (including target-setting)
- Basin Sustainability Plan delivery

ii) Basin Salinity Management
iii) Environmental Flows - including Cap management

Emerging Issues

i) Biodiversity and Ecosystem Services
ii) Governance, including Corporate Governance

Integrated Catchment Management

The publication of the Integrated Catchment Management (ICM) Policy Statement in June 2001 marked the first occasion that the Community Advisory Committee and the Ministerial Council have jointly endorsed a major policy direction. Part of the significance of this milestone is its illustration of the growing appreciation of the need for genuine community engagement in policy development.

The CAC had been actively involved in driving the discussion of the issues and development of the Statement over the previous two years. It also played an important role in the public consultation phase of the draft ICM Policy Statement in the latter half of 2000 (see chapter 4, KPA 5).

The CAC believes that the ICM Policy Statement is the most important policy direction the *Murray-Darling Basin Initiative* has taken and that the policy will have significant

implications for individuals as well as governments well into the future. By acknowledging that natural resource management is fundamentally a people-based activity, and by committing to a statement of values and principles that will guide the behaviour of the partners, the ICM Policy has the capacity to change awareness and behaviour across the Basin.

The values agreed to in the Statement are: courage, inclusiveness, commitment, respect and honesty, flexibility, practicability and mutual obligation. The principles for guiding our actions are: integration, accountability, transparency, effectiveness, efficiency, full accounting, informed decision-making and the adoption of a learning approach.

The CAC reported to Council that there is strong support for the ICM Policy Statement and for integration of natural resources planning and management in the Basin. Also of importance to the Committee is the need for significant resources to build capacity and strengthen the knowledge base in order to achieve the goals of integrated catchment management. Strengthening institutional arrangements, developing catchment plans and undertaking monitoring and evaluation are key to the successful implementation of integrated catchment management. The CAC has endeavoured to include these activities in the development of all policy directions in the Basin.

The CAC believes that the process developed to set targets, as part of the ICM Policy, must be accountable and achievable, must take social and economic values into account, and must be allowed to evolve over time. The Committee acknowledges that the evolution of this process will be difficult because it will involve a shift in culture, in behaviour and in the institutional arrangements operating in the Basin. In recognition of this, the CAC has made significant efforts to ensure that the values and principles agreed in the ICM Policy Statement are embedded in activities across the Basin.

Basin Salinity Management Strategy

The CAC also contributed significantly to the development of the draft Basin Salinity Management Strategy (see chapter 4, KPA 6, Water Quality and Flow Management). As delivery of salinity management will be the flagship for the ICM Policy in the Basin, the fact that it reflects the values and principles of integrated catchment management is an important start to changing the way we 'do business' in the Basin.

In providing advice to Council during the year, the CAC highlighted the need to ensure that an appropriate balance is achieved between protecting the full range of 'within-valley' values and the values at Morgan.

Given the difficult and long-term nature of the salinity challenge, it is important that the first five years of the Strategy are used to build confidence in the data, act on what is known and demonstrate commitment. The CAC considers accountability for outcomes within valleys to be essential and strongly endorses the planned review of progress against these targets after five years.

Environmental Flows

The CAC continued to participate on the Community Reference Panel (CRP) for the River Murray Environmental Flows and Water Quality Objectives Project (see chapter 4, KPA 6, Water Quality and Flow Management). Also, the Committee has had direct input to the development of a vision for the health of the River Murray: "A healthy River Murray system, sustaining communities and preserving unique values". The community members of the CRP are striving to ensure that the Environmental Flows project outcomes can bring communities together, bridge cultural, economic, social and institutional differences and inspire shared understanding and commitment to working together.

Terrestrial Biodiversity

The CAC held a workshop on Terrestrial Biodiversity in April 2001. Some of the fundamental questions raised and considered were: how to set Basin-wide targets for biodiversity; how a biodiversity audit might work; how paddock-scale actions should be supported; how to translate an awareness of landscape values into a vision for change within communities; and how do we manage the significant land-use changes that must occur if we are to address issues of sustainability.

The consideration of these issues was used to help inform the work that the CSIRO is doing for the Commission on a conceptual framework for terrestrial biodiversity target-setting.

Communication

Newscan

The CAC continued the preparation and distribution of its weekly press clipping service, *Newscan,* which provides wide-ranging perspectives on natural resources management issues across the Basin.

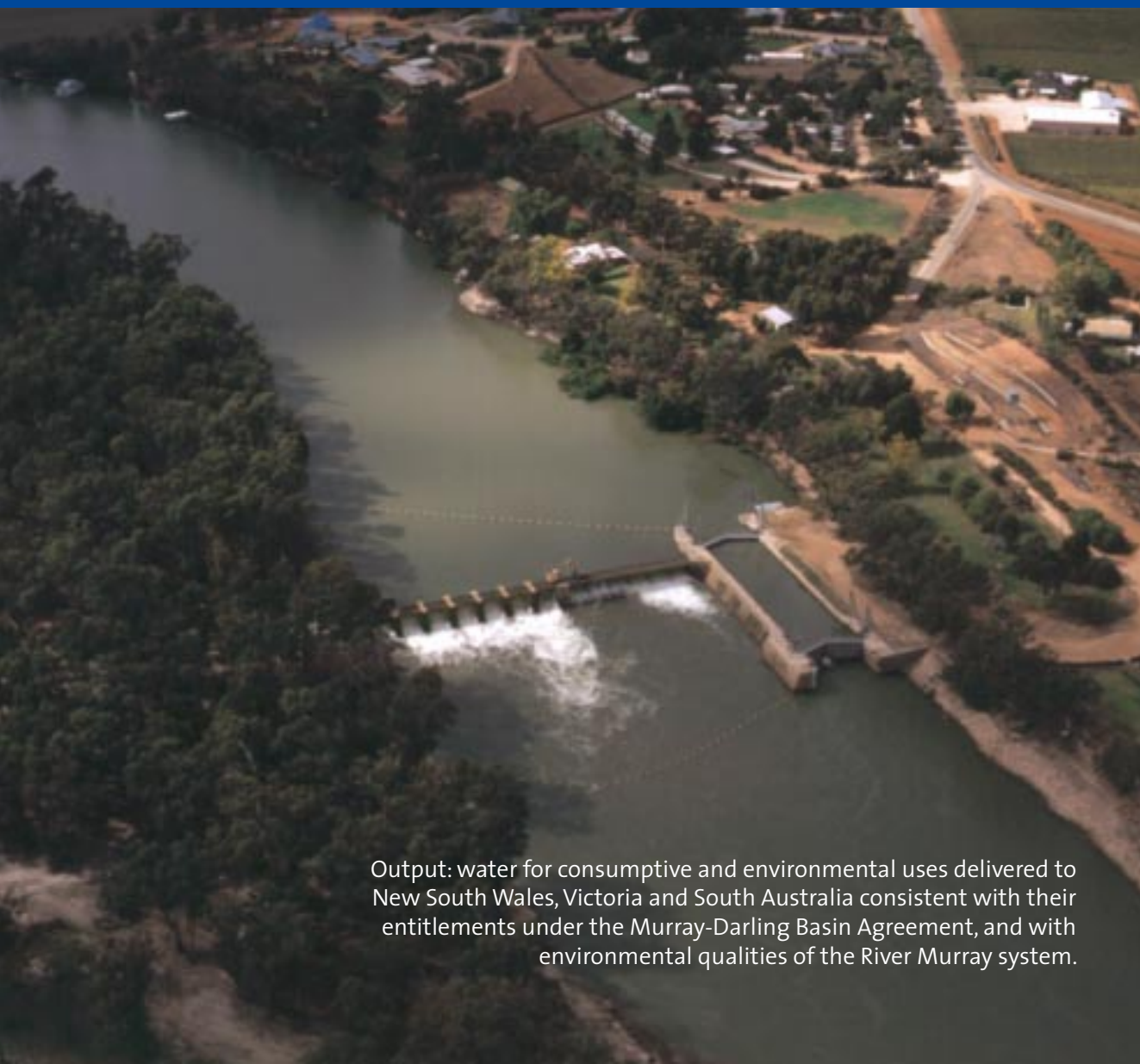
This free, awareness-raising activity continues to be popular with recipients and is a good indicator of the increasing interest and sophistication of rural communities in environmental issues in the Basin. Several media campaigns by major newspapers highlighting the plight of the River Murray and the trade-offs required for managing the Snowy River differently did much to increase public awareness of land and water management in the Basin.

Internet

The CAC has a page on the Commission's web site, and an increasing number of CAC members have Internet connections which provides a valuable and effective method of communication.

Chapter 3

Water Business



Output: water for consumptive and environmental uses delivered to New South Wales, Victoria and South Australia consistent with their entitlements under the Murray-Darling Basin Agreement, and with environmental qualities of the River Murray system.

3.1 Strategic Directions

In response to the 1994 water reform principles of the Council of Australian Governments (COAG) the Murray-Darling Basin Ministerial Council established a water business as an internal division within the Murray-Darling Basin Commission in 1996 titled River Murray Water. The distinct nature of River Murray Water clearly delineates the service delivery functions of the Commission from its resource management and policy functions.

The establishment of River Murray Water was achieved within the terms of the existing *1992 Murray-Darling Basin Agreement,* thus retaining the essential Basin-wide integration of values that are at the heart of the *Initiative*. Achieving this appropriate distinction between service delivery and resource management functions in order to clarify roles and responsibilities, whilst preserving the commitment to joint action within the context of Basin-wide values, continues to be a critical objective.

The major strategic directions followed by River Murray Water during 2000-01 were planned to take account of changing community standards in the management of water conservation and salinity mitigation works, and to ensure the sustainable management of assets.

During 2000-01 a range of options for the future development of River Murray Water was examined in the context of:
- the National Competition Council's second tranche report; and
- the Council of Australian Government's water reform principles.

The principal focus was on effective and independent regulation of pricing for services. It was recognised that this would require amendments to the *1992 Murray-Darling Basin Agreement*.

An internal review of the revised cost-sharing arrangements between the Commonwealth, New South Wales, Victoria and South Australia for water business costs incurred under the *Agreement,* was carried out. It confirmed that the revised arrangements continue to ensure that costs borne by the States relate closely to the levels of service received. To that extent, the revised arrangements are an effective surrogate for a 'price for service' policy based on full-cost recovery principles. Council confirmed the revised cost-sharing arrangements for continued application in 2001-02 estimates. The Commission has also approved arrangements for the conduct of an independent review of pricing principles in 2001. These matters were reported to the National Competition Council as part of its third tranche Review, the outcome of which is expected later in 2001.

3.2 Water Resources Management

The water resources of the River Murray System (see Figure 2) are used for a wide range of beneficial purposes. In addition to its inherent natural value to riverine, floodplain and estuarine ecosystems, other uses include irrigation, industrial and domestic water supplies,

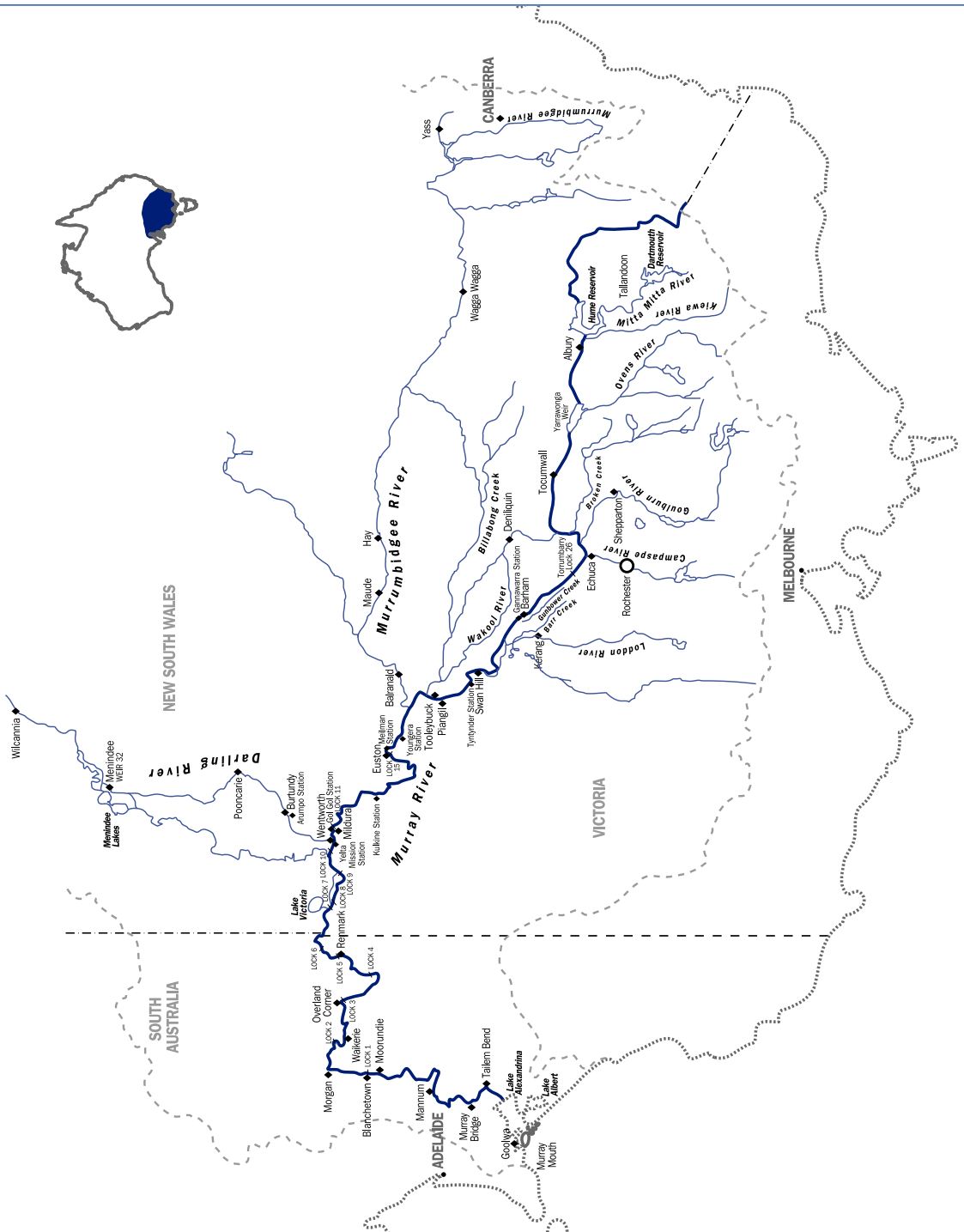


Figure 2 River Murray System

navigation, recreation and hydro-electric generation. River Murray Water manages the river system to ensure that the available water is documented in the water accounts and distributed to South Australia, Victoria and New South Wales in accordance with the Murray-Darling Basin Agreement.

River Murray Water undertakes the tasks of sharing and supplying water to the States through three main processes:

- **assessing** future availability of water;
- **accounting** for actual use of water; and
- **regulating** river flows to meet environmental and user needs.

Management of the River Murray System is based on a system of continuous water accounts. Assessments of the future availability of water are based on the status of these accounts and estimates of future system inflows, including inflows to the River Murray resulting from the operation of the Snowy Mountains Scheme. River Murray Water uses these assessments to advise the States of the shares of water available for the remainder of the irrigation season. Each State then announces relevant water availability to their respective consumers based on these shares and that State's plans for water management including management of water reserves.

The following sections summarise the availability of water in 2000-01, quantities supplied and diverted, and key issues related to the delivery of that water.

3.2.1 Water Availability

Following near median conditions throughout much of 1999-2000, and above median conditions in the latter part of 1999-00, inflow conditions in the upper Murray at the beginning of 2000-01 were considerably above median. This continued until December 2000 and led to significantly improved water availability. Inflows to upper Murray storages continued at near median levels until April 2001 leading to further minor improvements in water availability. Inflows in May and June 2000 were below median, but improvements then occurred in upper Murray storage volumes as irrigation demand had tapered off by late April.

In the upper Murray catchment areas, inflows in spring were the highest since 1996 and led to the filling and spilling of Hume Reservoir for the first time since then.

At the start of 2000-01, storage in Menindee Lakes, near the end of the Darling system that drains the central New South Wales and Queensland sections of the Basin, was near surcharge capacity of 1,999 gigalitres. This was a substantial component of the total system water available in 2000-01. Further significant rainfall in the Darling River system in late spring refilled the lakes to near capacity by early February 2001. Improvements in inflows occurred again in February and April 2001, and the lakes remained near capacity until the end of June 2001. Spill from Menindee Lakes in the first half of 2000-01 was not

re-regulated downstream, as Lake Victoria was being drawn down to meet target storage levels in accordance with operation for protection of cultural heritage.

At the beginning of July 2000, water resources available to New South Wales and Victoria were lower than they would otherwise have been as a result of the special drawdown of Lake Victoria water level in early 2000. The release of water was in addition to the downstream requirement for South Australia. The drawdown was undertaken to meet the Consent conditions prescribed by New South Wales National Parks and Wildlife Service for Lake Victoria operations to protect items and material of cultural heritage significance at the Lake (see chapter 4, KPA 6, Cultural Heritage). This action created a risk of loss of water availability to New South Wales and Victoria because part of the water assigned to those upper States is stored in Lake Victoria. However, water resources were recovered when Lake Victoria filled in early 2001 following a period of flooding along the River Murray and lower Darling River.

At the start of 2000-01, the share of water available to New South Wales was 1,380 gigalitres less than that available to Victoria, mainly as a result of greater inflows from Victorian tributaries over the previous three irrigation seasons. Throughout 2000-01, water reserves of New South Wales and Victoria improved by 450 and 330 gigalitres respectively.

At the end of June 2001, water held in reserve by New South Wales was relatively low at 2,390 gigalitres (although higher than the end of June 2000 reserve of 1,940 gigalitres). Consequently its outlook for water availability for 2001-02 was very low in the event of dry conditions. At the end of June 2001, Victoria's reserve was 3,650 gigalitres, and consequently it had an outlook of higher resource availability than New South Wales for 2001-02. Water availability at the beginning and end of 2000-01 is summarised in Table 3.

Table 3 Water Accounts for New South Wales and Victoria 2000-01 (GL)

Storage location	storage at 30 june 2000				storage at 30 june 2001			
	NSW	Vic	Total	Out-of Balance	NSW	Vic	Total	Out-of Balance
Dartmouth Reservoir	322	1869	2190	1547	1185	1953	3138	768
Hume Reservoir	644	644	1289	0	343	911	1254	568
Menindee Lakes	986	986	1971	0	990	986	1976	-3
Lake Victoria	289	210	500	-79	180	179	360	-1
Total	**2241**	**3709**	**5950**	**1468**	**2698**	**4029**	**6727**	**1332**

Notes: Accounts are based on operational data (rounded to nearest GL).
Data relates to gross storage.
The "out-of-balance" figure reflects the volume of stored water accounted to Victoria, minus the volume of stored water accounted to New South Wales.

State Irrigation Allocations

At 1 July 2000, South Australia was assured of receiving its full water entitlement in 2000-01. About four months of additional dilution flow to South Australia was also projected to be available in the early part of the year due to high storage levels in Menindee Lakes.

Victoria's initial irrigation announcement for the River Murray in 2000-01 was 100 per cent water right and 100 per cent 'sales' water. The initial allocation was the maximum possible. This occurred because Victoria had retained significant water reserves at the end of 1999-2000, and there were improved inflows to upper Murray storages in July 2000. Consequently, there were no further increases in allocation during the season.

In contrast, New South Wales' initial water availability was low, and it maximised water availability in 2000-01 by adopting the minimum projected reserve permitted under the 1992 Murray-Darling Basin Agreement. The initial allocation announcement was 9 per cent entitlement for general security irrigation, although most users had access to carry-over of unused entitlements from the previous season up to a limit of 20 per cent of entitlement. Following improvements in inflows along the River Murray, the allocation was progressively increased to 86 per cent by late October 2000. Further improvements in inflows enabled the New South Wales allocation to be progressively increased to 95 per cent by mid December 2000. This was accompanied by a reduction in carryover to 5 per cent. There were no further increases over the remainder of the season.

State Water Diversions

Diversion from the River Murray by New South Wales was relatively high because of the high allocation announcement made in December 2000, but usage was less than anticipated under dry conditions because of rain during autumn. Despite the early maximum allocation to Victorian Murray irrigators, total diversion to Victoria was also lower than expected because of the rainfall events in irrigation areas late in the irrigation season.

State diversions from the River Murray and lower Darling River are detailed in Table 4.

Table 4 State diversions[+] (gigalitres)

Year	River Murray				Darling **
	NSW	VIC	SA	Total	NSW
1982/83	1,638	1,637	*707	3,981	27
1983/84	1,765	1,318	508	3,590	*373
1984/85	2,163	1,749	547	4,460	280
1985/86	1,939	1,580	568	4,087	73
1986/87	1,780	1,472	454	3,706	72
1987/88	2,104	1,845	521	4,469	180
1988/89	1,411	1,337	548	3,296	322
1989/90	2,068	1,651	580	4,299	216
1990/91	2,277	1,856	627	4,760	140
1991/92	*2,600	1,827	589	*5,016	98
1992/93	1,589	1,147	482	3,218	77
1993/94	1,972	1,407	587	3,967	156
1994/95	2,123	*1,990	663	4,776	52
1995/96	1,904	1,742	568	4,215	169
1996/97	2,223	1,745	600	4,569	234
1997/98	1,863	1,696	664	4,223	71
1998/99	1,978	1,766	690	4,434	140
1999/00	1,212	1,540	642	3,395	85
2000/01#	2,048	1,702	662	**4,412**	**2**14

[+]Data based upon the official MDBC record for the reporting requirements of implementation of the 'Cap' on diversions.
*Record high diversion.
**Includes releases from Cawndilla Outlet to the Great Darling Anabranch.
#Data presented for 2000-01 is estimated based on hydrographic and operational data.

Water Trade

The Commission monitored permanent and temporary inter-State water trade during the year. River Murray Water made appropriate adjustments to water storage accounts of New South Wales and Victoria to take account of water trade between those two States, and made adjustments in flow to South Australia to take account of net water trade into South Australia during the 2000-01 year.

There was no water available in the Murrumbidgee-to-Murray inter-valley trade account during the year. Consequently there was no water available from that account to supplement flow in the River Murray. This situation arose because the account was reduced to zero at the start of the year when 100 gigalitres was transferred from the Murrumbidgee to the Murray via the Snowy Mountains Scheme via a notional Tumut release through Murray 1 power station. Further details on water trade are given in chapter 4, KPA 6, Water Entitlement and Efficiency of Use.

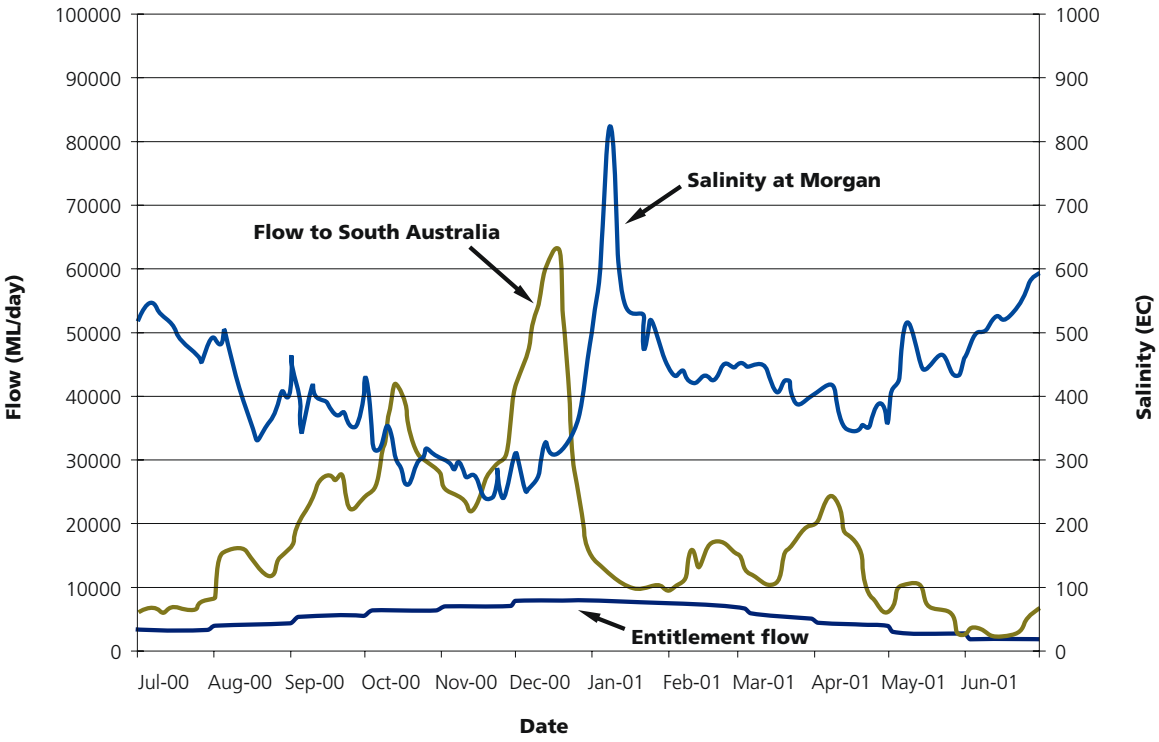


Figure 3 Flow to South Australia 2000-01 (and salinity levels at Morgan)

Flow to South Australia

Total flow to South Australia for the year was 6,530 gigalitres, which is well above the annual entitlement of 1,850 gigalitres, and a little greater than the long-term annual average of 6,200 gigalitres. In October and December 2000, the operation of Lake Victoria was modified to increase the peak flow to enhance the watering of wetlands. Flow and salinity behaviour is shown in Figure 3.

From 1 July 2000, South Australia's entitlement flow was boosted by additional dilution flow (that is, 3,000 megalitres/day flow above the normal entitlement, for the purpose of achieving further dilution of river salinity). This was maintained for almost 11 months until late May 2001 in accordance with the Salinity and Drainage Strategy. At that time, at the request of South Australia's Department for Water Resources, and with the agreement of the Commission, the additional dilution flow was ceased and flow was temporarily reduced to the normal entitlement of 3,000 megalitres/day. This action was undertaken to facilitate a monitoring survey of salinity along the Murray in South Australia in order to gain data on saline input to the river. This provided valuable information for use in planning of future salinity interception schemes, and for the assessment of

the performance of existing schemes. Following completion of the salinity survey, the additional dilution flow was reinstated in late June. The survey and manipulation of flow to South Australia was undertaken without impact on the availability of water for Victoria or New South Wales.

Flow to South Australia was above its requirement in early 2001 because of the need to draw down the water level of Lake Victoria according to New South Wales National Parks and Wildlife Service's Consent Conditions for Lake operation.

Operation of Storages

Total Commission storage at the start of July 2000 was moderately high at 62 per cent of active capacity as a result of some recovery after the end of the previous irrigation season. By comparison, this was considerably higher than the starting level in the previous season (45 per cent of active capacity at the start of July 1999). Storage volume steadily improved in the period July to November 2000 following winter and spring inflows to upper Murray storages. Total storage peaked at 92 per cent in late November 2000, and was then steadily drawn down to a minimum of 64 per cent in mid April 2001. Total storage then recovered to 70 per cent of active capacity by 30 June 2001.

At the beginning of July 2000, storage in Hume Reservoir, the Commission's main regulating storage for irrigation and water supply, was low at 43 per cent of capacity. Following good winter and spring inflows, Hume storage steadily increased. By late August 2000, when catchment conditions were such that it was clear that Hume would fill, pre-releases for flood mitigation commenced. Storage reached capacity in late October 2000, and spill from Hume continued until late November. Storage was then steadily drawn down to meet downstream requirements throughout the remainder of the irrigation season. It reached a minimum level of 26 per cent in late April 2001 then recovered to 41 per cent by the end of June 2001. During parts of spring and summer, release from Hume included a special release of the accumulated Barmah-Millewa Forest environmental water allocation for environmental benefit in the forest (see Environmental Report, page 27).

Storage in Dartmouth Reservoir gradually increased from 56 per cent of capacity in July 2000 to 79 per cent by December 2000, and then remained near 80 per cent until the end of June 2001. There was no requirement for water transfers from Dartmouth Reservoir to augment storage in Hume Reservoir to meet downstream requirements during the year, as sufficient resources were available in Hume. Consequently, resources in Dartmouth were retained for use in subsequent years. Minor increases in release were made from late November 2000 to late June 2001 to improve water quality in the Mitta Mitta River which had deteriorated as a result of low tributary inflows between Dartmouth Dam and Snowy Creek.

Storage in Menindee Lakes at 1 July 2000 was surcharged at 118 per cent of nominal capacity following improved inflows in the previous autumn period. Storage remained near surcharge capacity until late November 2000 when pre-releases were commenced for flood mitigation purposes ahead of the arrival of flood inflows. Release above channel capacity continued until early February 2001, and again in late March 2001. The release was above downstream requirement until it was reduced to the minimum in late April 2001. With further increases in inflows in February and March 2001, storage was refilled to near surcharge capacity by early April 2001, and maintained near full surcharge until the end of June 2001. Because of significant flooding along the River Murray, and a flood release from Menindee Lakes, there was no requirement for regulated transfers from Menindee to augment River Murray flows and storage in Lake Victoria. Normal surcharge rules were re-instated for Menindee Lakes in late November 2000 following a period of several years where surcharge was permitted in summer to improve resource availability in response to major constraints on storage capacity in Hume Reservoir and Lake Victoria in recent years.

Storage in Lake Victoria at the start of July 2000 was 74 per cent of capacity following a period of draw down to near 24.0 m AHD (three metres below full supply level) in the previous May under the Consent conditions required by the New South Wales National Parks and Wildlife Service for Lake operation. With flooding along the Murray, and flood releases from Menindee Lakes, there were three opportunities to lower Lake Victoria in anticipation of flow in transit for subsequent filling of Lake Victoria. This provided increased periods of drying of the Lake shore for benefit to vegetation. The Lake was filled in early February 2001, and held full for about two weeks. Draw down of the Lake commenced in February 2001 to achieve a water level of 24.5 m AHD (2.5 m below full supply level) by the end of April 2001 in accordance with the requirements of the Consent conditions. In April and May 2001, the Lake was drawn down below 24.5 m to provide additional 'airspace' for the purpose of assisting in maintaining a low flow to South Australia to facilitate conduct of a detailed salinity survey in South Australia by the SA Department for Water Resources. By the end of June 2001, storage in the Lake was drawn down to 53 per cent (24.0 m) to assist in meeting the flow requirement for South Australia.

At the end of June 2001, most of the Commission's reserve storage was retained in Dartmouth Reservoir and Menindee Lakes.

Storage behaviour resulting from River Murray Water's operation of the Commission's four major storages is shown in Figure 4.

The Snowy Mountains Scheme

Storage in the Snowy Scheme was high at the beginning of 2000-01, and the Snowy Mountains Council approved the release of up to 1,554 gigalitres from Murray 1 Power Station for the 12 month period 1 May 2000 to 30 April 2001 – significantly above the "minimum notification" release volume of 1,062 gigalitres for the 12 months to the end of April. The approved release comprised 1,062 gigalitres minimum notification, less 100 gigaliters which was advanced to NSW irrigators in the previous year, plus 592 gigalitres underdraw available at 1 May 2000. The actual release from Murray 1 Power Station for

the 12 months to 30 April 2001 was 1,096 gigalitres. This was comprised of 1,062 gigalitres as minimum notification, less 100 gigalitres payback of the 1999-2000 volume advanced to NSW irrigators, plus 100 gigalitres notional release of Tumut Development water, and release of 34 gigalitres of underdraw.

Payback in 2000-01, of the 100 gigalitres advanced to NSW irrigators in 1999-2000, was taken into account in the Commission's water accounts so there was no impact on the water resources of South Australia and Victoria.

3.2.2 Environmental Report

River Flows

Following the wet conditions in late 1999-2000, conditions in the upper Murray in July and August 2000 were also wetter than median. However, very wet conditions were experienced from September to November 2000 resulting in spill from Hume Reservoir throughout this period. Conditions were then slightly wetter than median until March 2001, after which conditions became dry in April and May before returning to median in June 2001. Whilst no spill occurred at Dartmouth Reservoir, the wetter conditions up to December 2000 resulted in numerous flow pulses in the lower Mitta Mitta River.

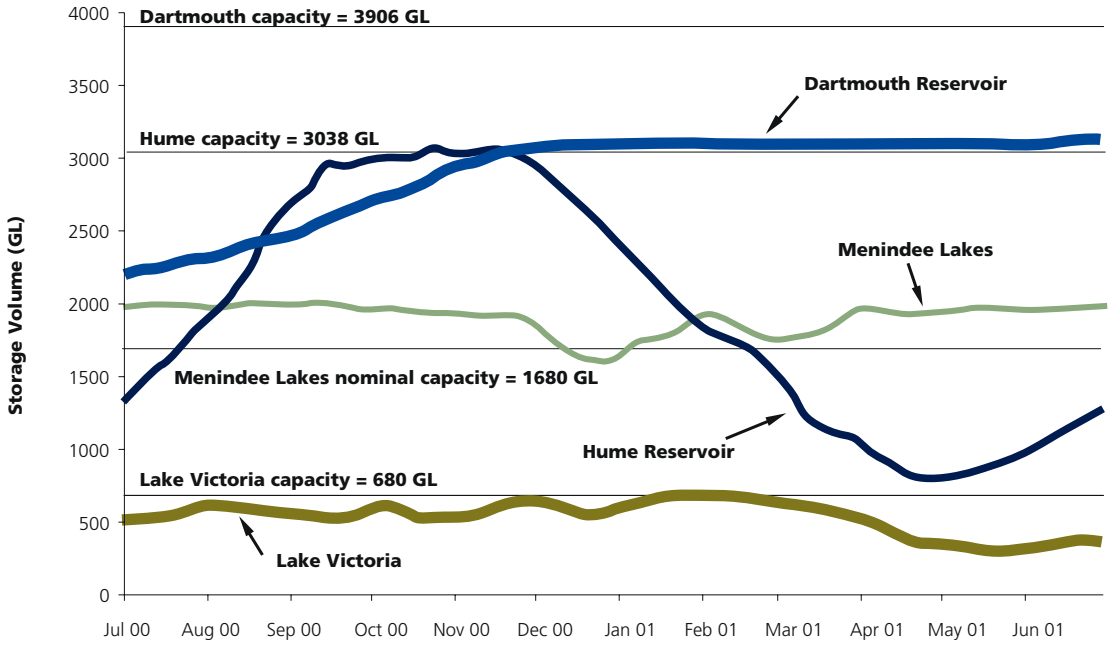


Figure 4 Behaviour of Major Storages 2000-01

Spill from Hume Reservoir, combined with tributary inflows from the Kiewa River, resulted in moderate flooding at Albury in October 2000. This, combined with moderate flooding in the Ovens River, resulted in minor flooding immediately downstream of Yarrawonga Weir and at some other stations downstream in October and November 2000.

Flow to the River Murray from the Goulburn River was generally confined to low regulated flow rate except for minor flushes in September and October 2000 resulting from rain. Minor flushes from the Murrumbidgee River to the River Murray occurred in August and September 2000.

On the Darling River upstream of Menindee Lakes, moderate flooding occurred at Wilcannia in January 2001. A spill from Menindee Lakes in late 2000 resulted in close to minor flooding in the lower Darling in January 2001.

Two trials were undertaken in October and December 2000 to enhance flow peaks in the River Murray in South Australia for environmental benefits on the floodplain, by a co-ordinated release from Lake Victoria. During the October enhancement the pool level at Lock 5 was also raised by 50 cm. The October enhancement increased a flow peak of 34,000 megalitres per day to 42,000 megalitres per day. The increase in pool level at Lock 5 augmented the effect of this flow to the equivalent of 70,000 megalitres per day for part of the reach between Lock 5 and Lock 6. The December enhancement increased a flow of 54,000 megalitres per day to 63,000 megalitres per day.

Monitoring showed that the October flow peak enhancement and weir pool manipulation did not have a significant salt impact in the river. It was concluded that, from a groundwater perspective, the raising of weir pool levels for a short period of time has no environmental costs. Fish monitoring showed that Carp respond to small increases in flow, and quickly move out onto the floodplain. Native fish need a much greater increase in flow before they move on to the floodplain system. River height appeared to have little effect on native fish. The increase in Carp on the floodplain attracted a large number of birds. Vegetation responded to the increase in water on the floodplain with results indicating that more frequent watering would lead to a change in the floodplain vegetation community, with terrestrial species being replaced by semi-aquatic ones.

These two flow enhancements have successfully watered a greater area of the floodplain than would have occurred without enhancement and manipulation. However, the duration of the high flows (eleven days in October and seven days in December) was too short for high survival rates of Murray cod or birds from breeding events stimulated by the floods.

Following floods along the River Murray in spring 2000, the accumulated Barmah-Millewa forest allocation was utilised to extend the duration of forest watering during 2000-01. The accumulated environmental allocation for the forest included 100 gigalitres repayment to the account following borrowing of 50 gigalitres by New South Wales for consumptive use in both 1997-98 and 1999-2000. Victoria made available an additional 50 gigalitres an advance of its share of the allocation for 2001-02. After retention of 100

gigalitres by Victoria following the spill of Hume Reservoir (see Operation of Storages), the accumulated forest allocation totalled 300 gigalitres. An additional combined total of 41 gigalitres was provided from other New South Wales and Victorian Murray wetlands allocations. As a result 341 gigalitres was provided as environmental flows for the Barmah-Millewa Forest during 2000-01. Significant environmental benefits were reported as arising from the use of the accumulated forest allocation (see box below).

Environmental releases to Barmah-Millewa Forest

In spring and summer of 2000-01, the Barmah-Millewa Forest on the central Murray experienced one of its most successful waterbird breeding seasons since the 1970s, and the flooding event also benefitted frogs, fish, trees and other vegetation and animal life. The environmental allocation released by the Commission prolonged watering of the forest after the most extensive spring flood since 1996. As a result, large breeding colonies of ibis, cormorants and herons were established, as well as some nests of egrets and whiskered terns which are not known to have bred there for over 30 years.

The Barmah-Millewa Forest covers some 70,000 hectares and extends along both sides of the Murray upstream from Echuca. It is the largest red gum forest in the world with a unique range of wetlands of high environmental value. The forest is culturally important for both indigenous and non-indigenous Australians and supports many economic and recreational activities. The Barmah section of the forest has been declared a wetland of international significance under the 'Ramsar' convention.

Although only a small proportion of the total volume of the Murray flood was provided by the environmental allocation, its strategic use dramatically increased the breeding success of the season. Delivering the extra water required some inundation of the lower lying areas adjacent to the river between Hume Dam and Yarrawonga Weir, particularly between Howlong and Corowa. The Commission is meeting, by ex-gratia payment, the costs of incremental damage arising from this specific operation.

In October 2000, about 67 gigalitres of the accumulated forest allocation was used to maintain water levels in the forest between flood peaks in September and late October. This avoided the possibility of birds leaving their nests because of falling water levels. Following a further flood event in October and November, the remaining 233 gigalitres of the 300 gigalitres accumulated forest allocation was released to maintain suitable water levels in the forest to sustain the waterbird breeding event and other environmental processes. An additional 41 gigalitres was provided in January 2002 from other environmental allocations in order to complete the forest watering. This provided a duration of forest watering similar to that expected under 'natural' conditions, i.e. those expected if there were no regulation of the river system for water conservation.

The allocation for the Barmah-Millewa forest is released in those years when it will produce the greatest environmental benefits. Research has indicated that the best use of the allocation is to extend natural flood events rather than create large floods of short duration. This gives support to biological activity which has already been triggered by natural processes. The strategy recognises that many breeding cycles take considerable time to be completed.

Extensive research conducted over a number of years has shown that the forest and other flora and fauna have been under considerable stress as a result of the continuing growth in diversions from the Murray. Following extensive public consultation, in 1993 the Murray-Darling Basin Ministerial Council approved an annual environmental allocation of 100 gigalitres for the forest. The 2000-01 year was only the second time that the environmental allocation has been released. The decision to make the releases in October 2000 was based on the principles developed by the Barmah-Millewa Forum and contained in the Barmah-Millewa Forest Water Management Strategy. The Forum is the community/agency body established to advise the Murray-Darling Basin Commission about water management for the Barmah-Millewa Forest.

Spoonbill chick in Barmah-Millewa Forest
Late in 2000 the Commission drew on the accumulated environmental allocation for the Barmah-Millewa Forest, and other environmental allocations, and released 341 gigalitres to extend the duration of inundation of the forest after flood events. As a result, the forest experienced one of its most successful bird breeding seasons since the 1970's, benefited frogs, fish and other animal life and promoted growth of trees and other floodplain vegetation.

Water Quality

Low water quality, mainly increased colour and turbidity, occurred in the Mitta Mitta River between Dartmouth Dam and Snowy Creek in October 2000 as a result of low tributary inflows in this reach. Minimum release from Dartmouth Reservoir was increased from 200 to 400 megalitres per day from November 2000 to June 2001 to assist in improving water quality in this reach.

Floodwater returning from the Barmah-Millewa Forest to the River Murray via tributaries and effluent streams in November 2000 was high in tannins and low in dissolved oxygen. This phenomenon, known as 'black water', is a naturally occurring process of discolouration due to breakdown and leaching of leaf and other forest litter.

Counts of blue-green algae in the 'high alert' range were recorded in Hume Reservoir in November 2000 and in February 2001. Medium alert levels persisted in the reservoir throughout March, April and May 2001.

Medium alert levels of blue-green algae were recorded in the River Murray between Tocumwal and Barmah, and in the Edward River system from February to mid-May 2001.

High alert levels of blue-green algae were recorded in the River Murray between Euston and Wentworth in January 2001, and low to medium alert levels persisted until April 2001.

Salinities generally remained low throughout the year except for minor rises associated with saline inflows from Victorian tributaries and returns to the mid reaches of the River Murray. A short-term peak of about 500 EC was recorded downstream of Mildura following the drawdown of the weir pool for weir maintenance purposes in May 2001.

Murray Mouth

During the autumn and winter of 2000, ocean conditions and low regulated flows in the immediate preceding period had combined to produce a significant reduction in the size of the opening of the Murray Mouth to the extent that it was severely blocked with sand deposits by early July 2000.

However, by August 2000, flow along the lower Murray in South Australia increased above entitlement as a result of increased flows in mid Murray tributaries. By late October 2000, channels leading to the Mouth had marginally widened. Flow in the lower Murray continued to increase to a moderate peak in October 2000. By November 2000, there was some clearance of accumulated sand near the Mouth. A second and higher flow peak in the lower Murray occurred in December 2000 but was of short duration before receding to regulated flow conditions in early January 2001. When the peak arrived at the Mouth in late December 2000, many barrage gates, including 26 gates at Mundoo Barrage, were opened for a very short period to remove sand deposits near the Mouth. However, this operation had little effect because the magnitude and duration of the peak flow at the Mouth was relatively low and short.

Between January and June 2001, there was little change in the state of the Mouth. While a reasonable flow path remained open, a net accumulation of sand occured as a result of ocean tidal conditions and low regulated upstream river flow.

During the year there was a slight but continual movement of the Mouth to the north-west.

Through 2000-01, the Murray-Mouth Advisory Committee met regularly to monitor conditions and to co-ordinate operation of the barrages. The aim was to maintain a flow path at the Mouth and prevent it from becoming seriously constricted and vulnerable to possible closure. The Committee's activities included:

- co-ordination and review of the monitoring of physical conditions at the Mouth;
- review of the results of environmental monitoring at the Mouth;
- preparation of a plan for the long-term management of the Mouth including contingencies for maintaining a flow path to and from the sea; and
- co-ordination of studies on the modelling of sediment transport.

The MDBC's Strategic Investigations and Education Program, in conjunction with River Murray Water, jointly allocated funds for a sediment transport study for the Mouth area. A project brief for Stage 1 of the study was prepared, and submissions received from consultants by June 2001. Stage 1 of the study is scheduled for completion by mid October 2001.

3.2.3 River Management Activities

Hume-Yarrawonga Waterway Management Plan

Following the October 1996 Hume Dam event, the Commission undertook a major public review of Hume-Dartmouth operations. As an outcome of that review, the Commission established an Advisory Committee to guide the development of a Hume-Yarrawonga Waterway Management Plan.

The Committee, chaired by the General Manager River Murray Water, comprises representatives of local government, catchment bodies, government land and water management agencies and riparian landowners.

As well as monitoring the continuing River Murray Water program of erosion control and revegetation works along the 180 km reach of river and floodplain, the Advisory Committee is developing a long term strategy plan.

With the assistance of expert consultants, it has produced a summary report which identifies a sustainable vision for the river and a set of broad strategies for reaching that vision. The vision is to achieve a sustainable and equitable balance between the competing demands on the river and its environs in this region.

The work to date will now form the basis for detailed discussions with the local communities with the intention of developing a broadly based plan for future implementation.

3.3 Asset Management

The assets controlled and managed under the Murray-Darling Basin Agreement are investigated, designed, constructed, operated and maintained, for and on behalf of the Commission, by three constructing authorities from New South Wales, Victoria and South Australia, as follows:

- Department of Land and Water Conservation (including its commercial water business – State Water);
- Goulburn-Murray Water; and
- SA Water Corporation.

River Murray Water (RMW) exercises the Commission's responsibilities in relation to management of the assets. Daily operation and maintenance of the structures is by a collective team from these three authorities totalling 100 staff. RMW values the dedicated service of this team and appreciates the commitment and pride which is evident in the stewardship of the assets.

The Senator Collings Trophy has been awarded annually for more than 50 years to the team looking after the asset judged to be the best maintained lock and weir. In 2000 the trophy was awarded to Peter Probert and his team at Kulnine Weir and Lock 9.

The investigation and construction program continued to be dominated by the on-going works at Hume Dam continuing a major upgrade of the dam which commenced in 1995. As these works have neared completion, emphasis has moved to other assets, which also require remedial works. The issues being addressed are varied and include:

- Dartmouth Dam, abutment stability and safe access;
- Yarrawonga Weir, seismic activity;
- Euston Weir, structural integrity;
- Maude and Redbank Weirs, refurbishment prior to hand over of responsibility to NSW; and
- Murray Mouth Barrages, OH&S.

Other activities relating to the River Murray assets include:

- a call for the development of a privately owned hydropower installation at Torrumbarry Weir;
- completion of the first draft of a business risk register and commencement of further improvements to and training in the use of this useful risk assessment tool; and
- continuing refinement of the annual budget processes.

3.3.1 Hume Dam

Phase 2 of the remedial works at Hume Dam was completed in September 2000.

Since April 1995, following a structural review of Hume Dam, the Commission has been pursuing a program of upgrading the dam to contemporary standards. This program addresses stability of the dam itself, the reliability of outlet works and spillway, and the capacity of the spillway under extreme floods. Excluding considerations of spillway capacity, total cost is expected to be in the vicinity of $75 million.

A risk assessment approach has been used to ensure that work proceeds in a priority order of most effective risk reduction. The ultimate goal is the achievement of risks that are as low as reasonably practicable in line with Australian national guidelines and international best practice.

Expenditure on the works for 2000-01 was $12.2 million, bringing total expenditure to date to $70.1 million. Good progress was achieved throughout the year and is further detailed below.

Embankment Improvement Works – Phase 2: Phase 1 embankment works were completed in 1998-99. Before completion, the works achieved contemporary dam safety standards for normal operating conditions by November 1997. However inflows after that time were not sufficient to fill the reservoir and prove the performance of the remedial works, until a flood event occurred in late 2000.

The second phase had begun in March 1999 and was essentially designed to further improve the stability of the dam under extreme earthquake loading. The works will ensure that Hume Dam can withstand an earthquake 50 times more severe than that experienced in Newcastle in 1989. The cost is $15 million, and the works focus on Embankment 1 on the Victorian side of the river. They include:

- extending berms (gravels added to the banks for weighting and strengthening purposes) and filters on Embankment 1B to dam crest level;
- extending berms and filters at the Southern Junction to dam crest level;
- improvement of the alluvial foundations by installation of stone columns; and
- construction of a low height berm and filters at the downstream toe of Embankment 1A extending from the Junction to the Bend.

Spillway Gates: An upgrade of the operating system of the Dam's 29 spillway gates to ensure long-term reliability was completed in April 2001. The work involved renewing the power supply and distribution system to the operating equipment, provision of backup power sources, rewinding of the motors, and the addition of modern control technology. The final cost of these works was $2.5 million.

Replacement of Emergency Closure Gates: Other than during floods, the release of water from Hume Dam is made through the two hydro-electric and four irrigation conduits. Each conduit has a corresponding emergency closure gate, positioned within the dam to be operated to prevent an uncontrolled release of water should the hydro-electric turbines or irrigation regulating valves malfunction. Replacement of the old and obsolete gates has been undertaken to maintain operational reliability and safety.

This complex task commenced in June 1997 and this year the remaining two installations were finished. The total $18 million program has been jointly funded by River Murray Water and Pacific Power.

Construction work on Hume Dam
Phase 2 of the remedial works at Hume Dam was completed in September 2000. Since April 1995, following a structural review, the Commission has been upgrading the dam to contemporary standards. This program addresses stability of the dam itself, the reliability of outlet works and spillway, and the capacity of the spillway under extreme floods. Excluding considerations of spillway capacity, total cost is expected to be in the vicinity of $75 million.

Additional Works and Structural Reviews: A third phase of embankment work was added to ensure that even longer term integrity is maintained under extreme conditions. This involves raising the downstream berm and filter layer at Embankment 1A to dam crest level. By June 2001 the works were essentially complete apart from crest road replacement and architectural and landscaping works, which were scheduled for completion in late 2001.

Periodic structural reviews continue to be undertaken, aimed at reducing risks at the structure to as low as is reasonably practicable.

A detailed review of Embankment 4 (the small bank on the NSW abutment) commenced in May 2001. Further investigations in 2001 will focus on the parapet wall, Embankment 3 and the northern junction between Embankment 4 and the northern training wall.

First Filling: High spring inflows provided the first opportunity since remedial works were implemented for the Dam to be monitored through a complete fill and drawdown cycle. A comprehensive cycle of surveillance readings was implemented and these readings were continuously monitored by the design engineers. The various remedial works have performed well with continuing deformations being consistent with design predictions.

Spillway Flood Capacity: The Hume-Dartmouth Technical Review Committee has put considerable effort into a detailed review of the Assessment of Hydrologic Risk for Hume Dam, prepared by the Department of Land and Water Conservation, NSW. In May 2001 agreement was reached on the scope of further studies required to progress resolution of flood discharge capacity of Hume (and Dartmouth) Dam. The work being carried out is at the forefront of development of hydrologic practice relating to estimation of extreme floods for dams with large catchment areas (Hume Dam – 15,280 square kilometres).

3.3.2 Other Dams and Weirs

Dartmouth Dam

Arising from a review by consultants of stability of abutments of the main dam, additional piezometers are being installed to investigate geology and monitor groundwater pressures within the abutment.

At Dartmouth Dam the safety of surveyors on the steep faces of the 180 metre high rockfill embankment has been the source of growing concern. Improved access arrangements have been identified for implementation in 2001-02.

Yarrawonga Weir

A comprehensive feasibility study identifying options for up-grading Yarrawonga Weir was completed in late 2000. This followed on from a structural safety review carried out in 1997 that had confirmed that remedial works at Yarrawonga Weir were required to bring the structure up to contemporary seismic standards.

In November 2000 the Commission approved the detailed design and approval phase of the project which was completed by March 2001. Subsequently Ministerial Council approved the construction of the remedial works at an estimated cost of $12.9 million.

Improving Weir safety
A safety audit of the River Murray structures completed in 1998 identified the diver assisted process used to restore some of the weirs after floods as an occupational health and safety issue. In future this task will be undertaken using removable bridge sections shown here being lifted by a weir crane.

The major elements to be constructed include:
- Strengthening upstream and downstream foundation with rock columns;
- Addition of downstream filter and weighting zone;
- Addition of upstream rockfill blanket;
- Strengthening of training walls on spillway; and
- Strengthening of hoist bridge columns.

Safety improvements for operators and the public will be incorporated through relocation of the pedestrian pathway to the new downstream berm, and new pedestrian bridges across the spillway structures. In addition a maintenance lane on the crest will be created by restricting traffic to single lane only, controlled by traffic lights.

The ongoing program of gate refurbishment was continued, with one spillway gate being refurbished. To date 9 gates have been refurbished, leaving one gate still to be refurbished after the remedial works project is completed.

Euston Weir

Since March 2000 a comprehensive investigation program has been carried out at Euston Weir to assist in clarifying the integrity of the structure, particularly the lock chamber. The investigations were extended following the discovery of substantial voids beneath the floor of the lock chamber.

Maude and Redbank Weirs

These two weirs on the Murrumbidgee River have now been fully overhauled as part of a process leading to the transfer of these assets to New South Wales. From 1 July 2001 New South Wales will assume responsibility for ongoing operation and maintenance of these two weirs.

Mildura Weir

There were also concerns about the safety of operations of the 'Dethridge' type weir at Mildura. The trestles at the weir are normally removed from the river every two or three years for maintenance purposes or for the passage of flood flows. An occupational health and safety audit in 1999-2000 highlighted a large number of hazards associated with their removal and reinstatement. Consequently, the planned removal of the trestles in May 2000 was deferred while the safety issues were addressed.

In May 2001 the four ramp trestles and the next five standard trestles were removed and replaced by refurbished trestles. The process tested the various occupational health and safety improvements, which had been made during the preceding year and highlighted the need for some further improvements which will be progressively implemented in the coming years.

Other Locks and Weirs

A program of upgrading the Robway system on lock cranes was commenced with replacement systems being installed at Locks 3, 4 and 5. The Robway system provides information to operators on load, radius, depth and overload cut-out during crane operation. Robway systems will be upgraded in the coming year at other locks and weirs where there are Kato cranes.

An extensive program of bathymetric surveys upstream and downstream of the locks and weirs has been initiated as an aid to management of erosion and sedimentation.

Upstream of Lock 6, Bank E, which is a rockfill overflow weir regulating flow into an anabranch, has been restabilised following minor erosion.

Fishway at Torrumbarry
In March 2001 the Ministerial Council approved the expenditure of $10 million over five years to install fishways similar to this one at Torrumbarry Weir on a number of major structures on the River Murray. On completion, fish will be able to move up and down stream between Hume Dam and the Murray Mouth.

3.3.3 Navigation pass and Fishway project

River Murray Water has been investigating improvements to the navigable passes on the eleven 'Boule panel'-type weirs of the River Murray (locks and weirs numbers 1 to 10 and number 15). The steel-framed components, which are removed from the river during high flows for boat passage when the locks are drowned out, are expensive to maintain and hazardous to operate. These navigable passes are nineteenth century technology and the matter of operator safety alone, has now rendered them obsolete.

A project steering committee, chaired by River Murray Water and comprised of the South Australian Water Corporation, New South Wales State Water, consultants and a reference group of key stakeholders, has been investigating a range of possible modification options.

It has been difficult to develop a technical solution that eliminated the major safety concerns but retained navigation during periods of high river flow. However, by February 2001 a removable bridge section, capable of being lifted by existing lock crane had been designed and a prototype installed and tested at Lock 2.

In March 2001 the project's Steering Committee met and assessed favourably the design solution and prototype testing results. By June 2001 the Feasibility Study Report was almost complete and SA Water had commenced mobilisation of a project implementation team.

It is proposed that work on the navigable pass modification will commence at Locks 7 and 8 and a concept design for these two structures is being prepared.

At its meeting in March 2001 the Ministerial Council also approved a structural works program to provide passage for migratory fish, from the sea to Hume Dam (see chapter 4, KPA 6, Water Quality and Flow management) at a total cost of $10 million over five years. At Locks 1 to 10 and 15 the new fish passages will be constructed as part of the navigation pass project. Fish ladders at the Barrages, Lake Victoria, Mildura Weir and Lock 11 and at a number of anabranches will follow.

3.3.4 Occupational Health and Safety

A safety audit of the River Murray structures completed in 1998 identified a number of areas of unacceptable risk to both operators and the public. Principal among them has been:

- the operations at the navigation passes at weirs;
- operation and access at the barrages;
- access on the locks and weirs; and
- the safe storage of chemicals and flammable liquids.

These areas have continued to receive priority attention over the last year.

At Mundoo and Boundary Creek Barrages concerns about occupational health and safety led to the installation of vehicle and pedestrian barriers systems early in the financial year. The cost and complexity of issues at Tauwitchere and Ewe Island has meant that the development of a solution for those structures has taken longer than originally planned.

3.4 Performance Reports

KPA 1 Water Storage and Supply

Sub-output: water storage and water delivery systems that are efficient and cost-effective, and measures which account for off-site impacts

Performance Assessment

- Water delivered according to the Agreement and to States' requests (to supply irrigation, towns and other uses, and for water quality and environmental purposes)
- Cost effectiveness of operating existing water control infrastructure
- Agreed assistance to land holders affected by the Commission's water operations provided

Performance Report

Water Delivery

River Murray water accounts and water availability for the States were regularly prepared by River Murray Water and agreed to by its Water Liaison Committee. River operations plans were prepared to ensure water was delivered to the States according to water available and within river system constraints and budget. A significant feature of the year was continued progress in upgrading the structural integrity of the major structures.

Cost effectiveness

The operation of the water control infrastructure was cost effective. (For additional information about activities undertaken during the year, see above for the general introduction to the Asset Management section.)

Assistance to landholders

In March 2000, the Commission announced the implementation of an ex-gratia payments program to landowners in the Mitta Mitta valley to address the effect of Dartmouth Dam on pasture productivity. The payments were based on the cost of establishing and operating an area of spray irrigation development on each property, sufficient to restore pre-dam pasture productivity. The offers relating to pasture restoration would be discounted by the value of any post-dam water allocation made by the Victorian Government to the landowner.

The detailed terms of the offer were developed in conjunction with a reference group comprising landowner representatives and independent experts.

Of the 96 landowners involved, payments were made to 77. The remaining 19 did not meet eligibility criteria, most of these having received earlier water entitlements which exceeded the value of currently assessed payments for reduction in pasture productivity. The ex-gratia payments were matched by a deed of release from landowners in respect of any past or future effects of the normal operation of Dartmouth Dam on pasture productivity.

The total cost of the ex-gratia payments project is expected to be $3.4 m. As part of the ex-gratia payment process, the Commission committed to contribute $150,000 toward the installation of 3-phase power to the lower end of the valley. TXU Pty Ltd has now commenced this major infrastructure development which is expected to be completed in 2001.

At Lake Victoria investigations into the most appropriate process for addressing salinisation impacts on neighbouring properties are continuing and negotiations with land holders have commenced.

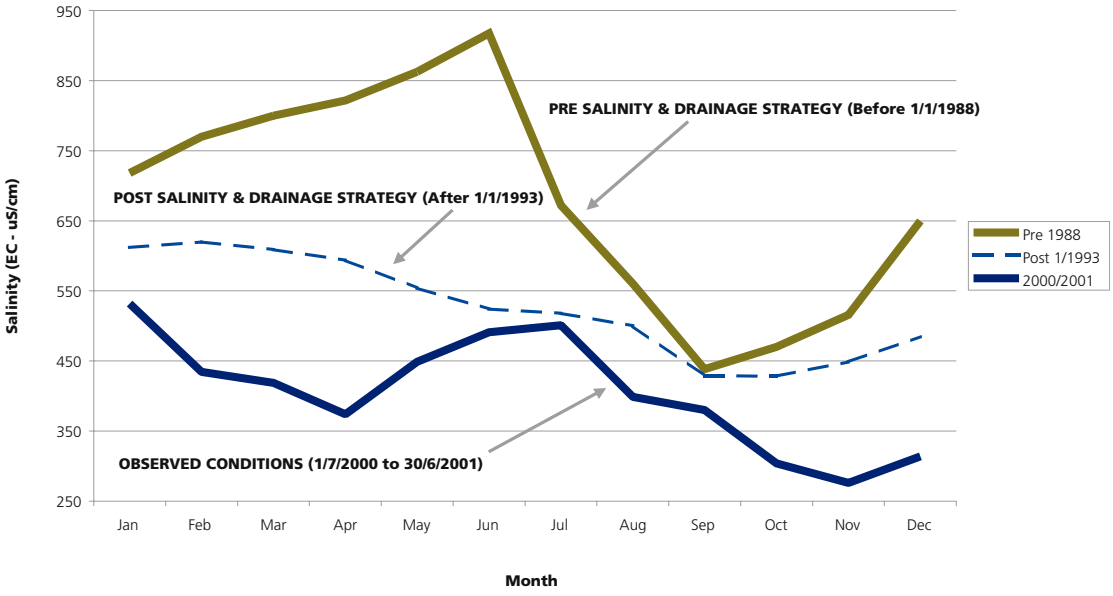


Figure 5 Murray-Darling Basin Commission Salinity Target, River Murray at Morgan 2000-2001

KPA 2 River Salinity Mitigation

Sub-output: salinity mitigation systems (interception schemes and river management measures) which achieve targets and are operated cost effectively

Performance Assessment

- Agreed river salinity targets met through operation of interception schemes and river operations
- Cost effectiveness of operating existing salt interception schemes
- New and upgraded salinity mitigation schemes in place

Performance Report

Salinity Targets

For the protection of key assets and values across the Basin, and for maintenance of water quality of the shared rivers, a river salinity target was established to maintain the river salinity at Morgan at less than 800 EC for 95% of the time. In 2000-01 there has been a combination of factors including additional dilution flow to South Australia and unregulated high river flows that have lead to achieving this target 100% of the time. This excellent performance is well illustrated in the figure below.

Releases were made to the river from Lake Hawthorn, Victoria, during the period September to December 2000 due to high flow conditions in the River Murray. The salinity impact on the River was negligible because the volume of the discharge was small compared with the much larger volume of low salinity water flowing in the main channel of the river. Due to this extended period of release to the River, pumping to the Wargan Basins was minimal. This has resulted in maintaining low storage volumes in these basins.

The Mallee Cliffs Interception Scheme in New South Wales ceased operation during the period 14 September 2000 to 29 January 2001 due to high flows in the River Murray. Good scheme performance during the remaining part of 2000-01 has ensured that the scheme continues to significantly reduce impacts of saline groundwater on downstream salinity.

Cost Effectiveness

The salinity mitigation schemes operated within budget and achieved the Morgan target of the Salinity and Drainage Scheme described above.

Upgrade of salinity mitigation schemes

Victoria

To improve the efficiency of the Barr Creek Drainage Diversion scheme it is proposed to construct a new weir immediately downstream of the pumps. This new weir will

be somewhat larger than the existing weir ensuring that the frequency of 'back-up' is reduced. The detailed investigations and design of the new weir by the Victorian constructing authority are nearing completion. Construction will commence in the 2001-02 year.

The Barr Creek Drainage Diversion scheme was effective in reducing the salt load reaching the River Murray. Pumping was suspended during the period 1 July 2000 to 12 December 2000 when high flows in the River Murray caused a back-up of the water level in Barr Creek rendering pumping inefficient.

Cleared agricultural land
As part of the implementation of the Murray-Darling Basin Salinity Management Strategy the Ministerial Council allocated an additional $60 million over 7 years for groundwater interception works. Projects undertaken under this program will be used to combat the 'legacy of history' such as the impact of clearing native vegetation over much of the Basin.

The Mildura-Merbein Scheme operated in accordance with the operating criteria although pumping rates on some of the wellpoints were slightly below design capacity. Modifications were made at pump site No.10 to improve pumping performance. Due to a re-occurring gas problem in the pumping line, remedial investigations are continuing.

New South Wales

The Buronga Interception Scheme was originally built in 1979 with upgrade work carried out in 1988 and is now in need of a major upgrade. This scheme has been plagued with ongoing operational difficulties due to infrastructure breakdowns. The scheme infrastructure has continued to deteriorate during the year with numerous emergency temporary repairs to the asbestos rising main. In addition a number of the interception bores are in need of refurbishment. A study was initiated during the year to investigate possibilities for optimising salt interception in the "Sunraysia Region" and will incorporate the Mildura-Merbein, Buronga, Mallee Cliffs and Psyche Bend salt interception schemes. This study will include investigation of possibilities for the redesign of the schemes based on currently available technology to improve interception capability.

South Australia

Both the Woolpunda and Waikerie Salt Interception Schemes have been achieving their design targets overall. However, a review of the existing Waikerie Scheme has indicated that flows from the eastern portion of the scheme could be reduced while still maintaining levels of performance. There is also a need to enhance the performance of the westward portion of the Waikerie scheme by installing additional bores.

The construction of Waikerie Phase IIA was approved by the Commission during the year and work has now commenced. This additional work will, in addition to extending the protection of the River Murray westward, address the required enhancements to the Waikerie Scheme.

Rehabilitation of the Rufus River Salt Interception Scheme including the installation of iron bacteria control measures has been carried out over the past 2 years. Work has been completed on wellpoint lines 3 and 4. However due to a number of delays, this maintenance program has not yet been completed. It is now planned that installation of a chlorination system on wellpoint line No. 2 will be complete in 2001-02. Once complete it will then be appropriate to review and optimise the scheme performance.

KPA 3. Navigation Services

Sub-output: navigation services which are cost effective

Performance Assessment

- Quality of navigation services at weirs
- Cost effectiveness of navigation services

Performance Report

Quality of Service

There were no unplanned outages of locks except for some minor malfunctions of the hand operated lock at Tauwitchere Barrage. Occasionally minor breakdown of hydraulic systems delayed lockages by up to 2 hours.

Planned outages were undertaken for a number of purposes including:
- refurbishment of lock gates and valves;
- removal of trestles (Mildura Weir);
- high river flows (Lock 7 from 27 November to 23 December 2001); and
- investigations of foundations (Euston).

Planned outages are normally notified in advance to key river users. During the outage of Lock 7 the navigable pass was dismantled, thus maintaining navigation past the weir.

At Torrumbarry and Euston Weirs use of the locks is dependent on high river flows to maintain satisfactory tailwater levels. Skippers of vessels wishing to use these locks are accustomed to maintaining close contact with lock staff to monitor likely river conditions.

Cost effectiveness

In 2000-01 navigation services were provided at a cost of $1,047 million compared with budget for the year of $1,021 million.

KPA 4. Other Services (including hydro-power and recreation)

Sub-output: incidental services from River Murray assets which are provided in a business-like manner

Performance Assessment

- Additional revenue achieved from River Murray Water infrastructure

Performance report

This performance area relates to services provided by River Murray Water in conjunction with, but in addition to, its core business activities. The major components are the provision of energy in stored water to generate hydro-power and the renting of land surrounding River infrastructure and accommodation provided to workers.

Operation of Power Stations at Hume Dam and Yarrawonga Weir continued throughout the 2000-01 year according to downstream flow requirements and generation capacity. At Dartmouth Dam, Southern Hydro utilised some of its water entitlement to generate additional electricity during periods of high electricity demand.

Income from these sources exceeded the targets set for the year and were substantially in excess of the amounts received from these sources in the previous year.

Seasonal factors can have an impact on performance in these areas, particularly hydro-generation, and a satisfactory return from these sources in one year is not a guarantee of a similar level of return in a subsequent year.

Chapter 4

Natural Resources Business

Output: policies, programs, systems and knowledge which contribute to achieving sustainable natural resources management and help to establish an appropriate balance between the resource needs of the environment and human needs.

4.1 Strategic Directions

The public release of the Murray-Darling Basin Ministerial Council's ICM Policy Statement on 5 June 2001, marked a significant change in the Commission's responsibilities for sustainable use of natural resources. To this point the guiding policy of the 1990 Natural Resources Management Strategy had been highly influential in establishing a community-government partnership, in setting up catchment management bodies in planning and directing investment to a broader range of natural resource issues, and in whole-of-Basin reporting.

The ICM Policy Statement builds on these essential characteristics in two fundamental ways:

1. the Ministerial Council and its Community Advisory Committee "signing on" to shared values and principles for joint action; and
2. an accountability framework where natural resource condition targets are the basis of sharing effort regionally and being responsible for progress.

The Policy lays out an eight year program for developing the targets, ranging from water sharing and water quality (core obligations under the Agreement) to those for river ecosystem health and terrestrial biodiversity (consistent with a new integrated catchment management mandate).

The Basin Salinity Management Strategy, endorsed by Ministerial Council on 30 March 2001, is the first high level strategy to implement the principles of the ICM Policy. It sets a precedent for establishing catchment targets and building accountability around them. By agreement, Queensland enters into accountability for salinity control for the first time, bringing a truly Basin-wide commitment to the Strategy. Other strategies under development in 2000-01 were the Native Fish Management Strategy and the Floodplain Management Strategy.

Options for the Environmental Flow and Water Quality Plan for the River Murray were under development from March 2001. Restoring environmental values on the Murray and Lower Darling is a major policy issue for the Council. The Commission is developing options for its consideration in consultation with community, scientific and jurisdictional representatives.

With management of environmental flows, salinity and native fish in mind, the Ministerial Council took key decisions on works and measures:

- a review of structures and operating rules on the River Murray and Lower Darling;
- a seven year joint program of salt interception schemes ($60 million); and
- construction program to extend fish passage from Hume Dam to the Murray Mouth ($10m) over the next five years.

Consistent with the scope and principles of the ICM Policy, the Commission initiated work to bring about catchment level changes, in particular change in land use. These ranged from the conceptual development of a "vegetation bank" to optimise public investment in reforestation targeted at salinity, to major projects investigating sustainability of current land uses (Landmark) and evaluating the impacts of revegetation (Heartlands). In 2000-01 the Commission's work program extended to protection of terrestrial biodiversity with initiation of a project to develop targets.

Other agreements on developments in 2000-01 that contributed significantly to scope, principles and accountability framework of the ICM Policy, included:

- clauses in the National Action Plan on Salinity and Water Quality requiring consistency with Basin policies and strategies;
- initiating key regional catchment projects under the Murray-Darling 2001 program (Natural Heritage Trust), focused on implementing Ministerial Council strategies; and
- a conceptual framework for a Sustainable Rivers Audit, reporting not only on the hydrological regime of rivers Basin-wide, but also water quality and biological condition.

In summary, the endorsement and release of the ICM Policy and the development of a range of initiatives in 2000-01 has brought the following characteristics to the natural resources business:

- strategic - high level policies and strategies;
- Basin-wide in Scope - all States committed;
- catchment focussed - land use considerations;
- targeted investment - regional priority projects;
- knowledge driver - large investigations projects; and
- accountability - targets and audits.

4.2 Delivering the NRMS through the Basin Sustainability Plan

In 1996 the Ministerial Council established the Basin Sustainability Plan (BSP) as the planning, evaluation and reporting framework for the Natural Resources Management Strategy (NRMS). The BSP has clearly defined objectives, key result areas and performance indicators – agreed in principle by the partner governments – to guide and report on all natural resources investments in the Basin. The Council's new Integrated Catchment Management (ICM) Policy (see KPA 5) essentially supercedes the NRMS. While a revised reporting framework that builds on the achievements of the BSP will be put in place to support the ICM Policy, the BSP will continue to be used until it is developed.

4.2.1 Basin Sustainability Plan

The BSP is not a funding program, but a plan for focussing government activity and community investment within the Basin on common objectives. These objectives are aimed at achieving significant improvements in the key result areas of:

- sustainable agricultural productivity;
- water quality;
- nature conservation; and
- cultural heritage.

The Basin Sustainability Plan has:

- promoted integrated catchment management, providing a framework for stable, targeted investment in sustainable natural resources management and for evaluating outcomes of investment;
- applied to all integrated natural resources management programs in the Basin – whether under the MDBC's auspices spanning a number of jurisdictions, the natural resources management responsibilities of individual States and the ACT, or through programs of the Commonwealth;
- allowed the MDBC to "value-add" through its unique role in "brokering" collaborative arrangements for investment in investigations, communication and technology transfer, promotion and education, and coordinating and advising on resources for on-ground action.

The BSP is implemented through three sub-programs that take account of the variety of regions found within the Basin:

- the Riverine Environment Management Sub-program, covering the thousands of kilometres of biologically rich corridors that dissect the Basin's catchments;
- the Irrigated Regions Management Sub-program, covering areas of intensive irrigated land use in the Basin; and
- the Dryland Regions Management Sub-program, covering the Basin's most extensive areas incorporating dryland agriculture, rangelands and forests.

The BSP also provides management implementation objectives to ensure that the arrangements for natural resource management enhance the partnership between community and government, and help the managers of the Basin's land and water to protect its catchments. These objectives are implemented chiefly through the Human Dimension and Communication sub-programs.

The three BSP sub-programs coordinate with each other and with the Human Dimension and Communication sub-programs. Design, implementation and reporting of their performance recognises this interaction, and the need for integrated management of Basin-wide issues.

The main functions of the BSP are to plan, evaluate and report on investments to achieve outcomes in the key result areas through:

- policy development;
- generation and transfer of knowledge; and
- implementation of on-ground works and measures.

The relationships between these three functions, and sources of government and community investments, are shown in figure 6.

4.2.2 Planning, Evaluation and Reporting

Effective management of the Basin's natural resources requires long term planning and evaluation of outputs and outcomes and clear, concise reporting to support adaptive management. The Commission's primary planning, evaluation and reporting activities are outlined below.

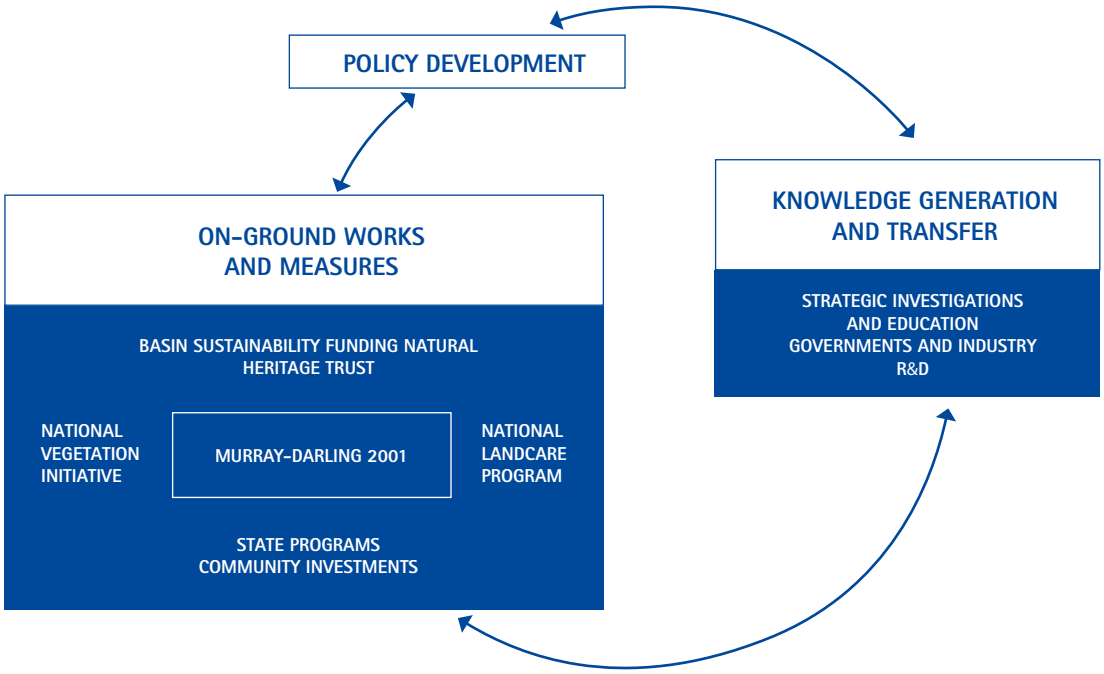


Figure 6 Developing the Natural Resources Management Strategy.

Policy Development

The Commission actively oversees policy aspects of the Initiative. It needs flexibility to react to issues of the day and to proactively direct those actions needed to support policy changes or develop new policies to address emerging issues (such as dryland salinity). The Commission's policy development activities are carried out primarily through its Statutory and Policy Development program.

In 2000-01, the Commission's project boards (see appendix D) continued to oversee policy development using a formal project management system which provides a transparent, controlled process for planning projects and reporting on them to the Commission. Project reports were provided at each Commission meeting during the year. Performance reports for indivual projects is provided under KPA 5 and KPA 6.

Generation and transfer of knowledge

The Commission's activities for the generation and transfer of knowledge are aimed at supporting the equitable, efficient and sustainable use of the Basin's natural resources. They are implemented primarily through its Strategic Investigations and Education (SI&E) funding program. A three year rolling plan for the SI&E program has been developed by the Basin Sustainability Plan Working Group and the associated issues working groups. It provides the framework for strategic investigations and education investment. This rolling plan is updated annually. Issues working groups oversee riverine, irrigation, dryland and human dimension investments under the Strategic Investigations and Education funding program. Peformance assessment is reported under KPA 6, Knowledge.

On-ground Works and Measures

The planning, evaluation and reporting frameworks for on-ground works and measures are implemented primarily through the catchment management systems of the partner governments. The Basin consists of 19 catchment management regions each with a catchment management committee comprising community and government representatives. These regions are primarily based on catchment boundaries (see figure 7).

Every year each State Contracting Government develops a Three Year Rolling Plan outlining the outcomes to be achieved against Basin Sustainability Plan objectives in each management region of the Basin for the proposed level of investment. These plans – based on regional, State and Basin priorities – help direct investment to activities with the best economic, environmental and social outcomes. They show the full extent of expected investment from a range of sources into catchment management strategies and associated action plans.

Figure 7 Catchment Management Regions in the Murray–Darling Basin

A consolidated Three Year Rolling Investment Plan for the Basin, based on the State plans, provides a strategic summary of government and community investment across the Basin. It represents a summary of community aspirations for their regions over the next three years and the expected investment required to achieve those aspirations. Performance assessment and key investment information on the Three Year Rolling Investment Plan for the Basin 2001-02 to 2003-04 and for the Basin Annual Report of Investment for 1999-00 are provided under KPA 8.

The main source of investment for on-ground works in the Basin is the Murray-Darling 2001 funding program. It is a multi-partner program, delivered through the Natural Heritage Trust, to improve the health of the Basin's river systems through integrated catchment management of its land and water resources. The Commonwealth contributes 50 per cent of funding which the state governments match. Murray-Darling 2001 aims to:

- improve water quality;
- restore riparian land systems, wetlands and floodplains;
- improve the health of key river systems; and
- encourage ecologically and economically sustainable land use.

The performance report is provided under KPA 7.

4.3 Performance Reports

KPA 5. Integrated Catchment Management

Sub-output: policies, processes and information which support institutional arrangements enabling effective partnerships for integrated catchment management throughout the Basin and effective participation by the Basin community.

Performance Assessment

- Adoption of an Integrated Catchment Management policy for the decade 2001-10 and progress in its implementation
- Effective communication in Commission projects which reflects the Initiative Communication Strategy
- Effective consideration of human dimension matters in Commission projects
- Effective information systems and targeted information to support community participation in integrated catchment management and natural resources management

Performance Report

Integrated Catchment Management

The policy statement *Integrated Catchment Management in the Murray-Darling Basin 2001-10,* was approved by the Ministerial Council on 30 March 2001. During the year a taskforce with members from the six partner governments and the Community Advisory Committee developed the policy to provide direction for natural resource management in the Basin over the coming decade. The Ministerial Council and the Community Advisory Committee jointly released the draft document for three months public consultation from 5 September 2000. Approximately 200 submissions were received across government, industry and community sectors, with about 90% expressing strong support for the proposed ICM approach. However there was also strong concern from the community over the ability and willingness of governments to implement the policy. The final document was released on 5 June 2001, World Environment Day. Key elements of the policy are shown in the box.

Key Elements of the ICM Policy

- **goals, values and principles**
  to guide community, industry and government partnerships
- **trade-offs**
  between environmental health and economic productivity
- **targets for catchment health**
  to limit the stresses that are placed on the natural resources of the Basin
- **knowledge generation and sharing**
  to improve decision-making by all partners
- **capacity building**
  for all partners to play their part
- **a whole of catchment approach**
  to planning, implementing and evaluating actions to manage natural resources
- **catchment planning linked with land use planning**
- **clear roles, responsibilities and accountabilities**

Concurrent with the development of the ICM Policy, the Commission worked on a new Basin Salinity Management Strategy as the first embodiment of the policy (see KPA 6, Water Quality and Flow Management).

Communicating Commission projects

The Commission implements specific projects as part of two programs - the Statutory and Policy Development (SPD) program, and the Strategic Investigations and Education (SI&E) funding program. SPD projects are implemented in-house under the direction of project

boards comprising Commissioners or Deputy Commissioners. SI&E projects are carried out by external consultants under the guidance of the Commission's Issues Working Groups. To help improve communication about its projects, the Commission requested in October 1999 that as new projects were commenced, they include communication plans that utilise an agreed guide to communication consistent with the Initiative Communication Strategy.

One new SPD project (Sustainable Rivers Audit) and 49 new SI&E projects were commenced during the year. 70% of the SI&E projects included an appropriate communication plan. A communication plan will be developed for the Sustainable Rivers Audit as part of the pilot audit planned for next year.

While it is recognised that small projects developing a particular piece of research do not need a specific communication plan, the development of specific communication strategies has been slower than anticipated in both SPD and SI&E projects. A major

Street scene Wagga Wagga
During the year the Integrated Catchment Management Policy Statement was developed through a process of extensive consultation between governments and communities and approved by the Ministerial Council. The ICM statement will provide a framework for future Commission programs and help ensure a sustainable future for regional communities in the Basin.

communication initiative in the Irrigated Regions Sub-program was established in June 2001 with the commissioning of a professional communication company to oversee and coordinate all communication within the sub-program. This approach will ensure a consistent approach to communication is utilised and is being considered as a pilot for other sub-programs.

Additional work is being undertaken to train project managers and issues working groups on the use of the Commission's Communication Strategy Guide. A number of case studies highlighting the use and benefits of the Commission's communication framework are also being developed.

Human Dimension sub-program

In November 1999 the Commission approved a new *strategy People as an Integral Part of the Initiative: a Human Dimension Strategy* as its guide to addressing social, cultural, institutional and economic aspects of natural resource management. An Implementation Plan for the Strategy, developed through a project board, was approved by the Commission in July 2000, and had the following key elements:

- knowledge generation and dissemination;
- embedding the agreed values and behaviours into Commission processes;
- building natural resource management sectoral capacity; and
- developing engagement processes to facilitate meaningful partnerships between Basin communities and governments.

Major progress was made towards milestones agreed in the Plan. Key achievements included ensuring that the new ICM policy appropriately encompasses the human dimension, and that the processes used for community feedback on the draft policy supported the involvement of a wide range of stakeholders and provided the opportunity for face-to-face discussion and comment. Through the program, the Commission has put in place appropriate structures to drive implementation of the ICM policy.

A suite of projects to facilitate the rollout of the ICM policy were commenced and/or completed during the year. These include:

- using collaborative processes to identify best practice engagement principles and to prepare a toolkit to support such processes;
- examining the role of local government in natural resource management; and
- scoping the need for, and value of, a Murray-Darling Basin-specific leadership program.

Communication sub-program

During 2000-01, copies of the Commission's Communication Strategy Guide were distributed widely. Training workshops on how to use it were provided to partner Governments, catchment organisations and internal working groups.

The guide has been used by a range of organisations and programs including the Murrumbidgee Catchment Management Board, the South Australian Watercare program and the Central West Target (MD2001) Project. The guide has helped these organisations to develop their own communication plans, ensuring complementarity with the Initiative Communication Strategy.

Key corporate documents published during the year included the Annual Report and Corporate Plan, the 2001 MDBC calendar, a new *Initiative Overview* brochure and the book *Rivers as Ecological Systems: The Murray-Darling Basin*. This last publication is a partnership with Environment Australia and Land & Water Australia with technical expertise provided by CSIRO Land and Water and the CRC for Freshwater Ecology. It makes accessible for the first time the foundation knowledge on the relationships between riverine ecology and river flow. A list of Commission publications released in 2000-01 is at appendix E.

Media activities and articles focussed on issues such as dryland salinity, environmental flows, water allocation and impact of farm dams on water availability. To increase understanding about major issues relevant to the Commission's work, a comprehensive communication package was prepared to support the release of the draft and final ICM policy and draft Basin Salinity Management Strategy. This resulted in wide press coverage over the three month consultation period for the documents.

The MDBC web site has become an important means of disseminating and accessing information about the Murray-Darling Basin. In the six months ending June 2001 an average of 18,000 hits per month was recorded with the average length of visit approximately 20 minutes. All new Commission documents are provided on the web with a large number of documents being downloaded. For example, the summary of the draft Basin Salinity Management Strategy consistently averaged a download of approximately 4,000 units per month for the eight months ending June 2001.

The development of the Initiative Communication Strategy indicated that there needed to be improvement in regional communication networks. The Commission has established a pilot project called BasinLink. This project brings together twelve information providers from regional Tourist Information centres, education outlets and Visitor Centres across the Basin to provide the foundation for a regional communication network.

Over 14,000 primary school children from 283 schools participated in the Commission's Special Forever project during 2000 which culminated in the publication of the anthology *Rivers Forever*. The implementation of the project relies on 23 volunteer English teachers throughout the Basin and is managed by the Primary English Teaching Association. A greater emphasis has been placed on writing about natural resource issues and streamlining the administration of the project. The changes in the project resulted in 400 schools registering in Special Forever in the first half of 2001.

KPA 6 Land and Water Management

Sub-output: policies and programs for sustainable natural resources management, based upon sound knowledge and information systems, which take account of relevant social, economic and environmental matters.

Knowledge

Performance Assessment

- SI&E program is well managed and supports knowledge generation in priority areas

Performance Report

The total budget for the Strategic Investigations and Education funding program for 2000-01 was $13.4 million. This comprised $8.45 million annual contribution by contracting governments and $5.0 million carried over from 1999-00. The revised SI&E Three Year Rolling Plan was approved by the Commission in July 2000. In 2000-01, projects to the value of $9.9 million, representing 74% of the total budget, were committed against the three year rolling plan. The breakdown of that commitment by program is given in Table 5.

Program coordinators continued to manage individual SI&E projects to ensure that contractual obligations during the year were being met.

In 2000-01, the President of the Commission commenced a review of the program's management. His final report was due to be considered by the Finance Committee at its August 2001 meeting.

Table 5 Strategic Investigations and Education Investment in 2000-01

Sub-program area	Ongoing Projects		New Projects		Total Projects	
	Number	$ million	Number	$million	Number	$million
Riverine environment	17	1.3	12	0.8	29	2.1
Irrigated regions	26	1.8	9.0	0.5	35	2.3
Dryland regions	19	2.1	17	2.3	36	4.4
Management implementation	13	0.5	11	0.6	24	1.1
Total	75	5.7	49	4.2	124	9.9

Water Regulation and Statutory Assessments

Performance Assessment

- Advice provided to enable cost-effective regulation of water resource operations, upholding the principles of the Murray-Darling Basin Agreement
- Information systems support statutory functions and related decision-making, and meet best practice standards
- Timely assessment of development proposals/statutory referrals

Performance Report

Water resource operations advice

The Water Resources Group assisted with the timely issue of weekly reports and provided advice based on its maintenance of water accounts and modelling operations to meet the needs of River Murray Water and partner governments. This advice draws on a range of computer models (see box). The Group also supplies a standard set of data (flows, salinity, water use, storage levels) that is included in the information distributed in River Murray Water's Weekly Report.

Computer modelling support for Commission programs

River Murray Water Accounts: tracks the volume of water available to New South Wales, Victoria and South Australia, after taking account of inflows, usage and losses.

Water Resource Assessment program: looks forward and predicts what water will be available to each of the States if a given pattern of inflows occurs in the future.

Weekly forecast model: provides weekly forecasts of water flow and salinity levels, taking account of recent rainfall and other factors, for the River Murray system from Sunraysia to the barrages over the coming two to six weeks. For Southern Hydro, predictions are provided for the volumes of water that will be available for release from Dartmouth Dam over the next five years.

During the year other information and advice, using the models, was also provided to Commission projects including the development of the Lake Victoria Management Strategy and the River Murray Environmental Flows project, and in response to requests from the partner governments.

Information Systems to support Statutory Functions

The Commission's current models of the River Murray system (see box above) operate at a monthly time step. This is too coarse to support activities such as those being proposed as part of the environmental flows project (see Water Quality and Flow Management). These models also fail to capture the day-to-day changes that have proven to be very important

in river operations (eg rates of rise and fall and the re-regulation of flows in weirs). Because of this, in July 2000 the Commission decided to select and implement a daily model for the River Murray system. An international search for suitable models has been undertaken. It is anticipated that a selection will be made early in the 2001-02 financial year.

The Commission commenced a review of its Geographical Information System in September 2000. The review considered:

- the current usage of, and demand for, existing Commission GIS datasets;
- existing processes for dealing with Commission GIS datasets and issues; and
- future needs and demands for Murray-Darling Basin GIS datasets including input from partners and key stakeholders.

A typical scene in the mid-Murray reach showing irrigation development and wetlands on the floodplain

The Cap on increased water diversions in the Basin was introduced to protect river health and the security of existing diverters. The five year review of the Cap found that without it there would have been a significantly increased risk that the environmental degradation of the river system of the Basin would have been worse.

Based on the findings of those investigations the review will make recommendations for a more strategic approach to future management of the Commission's GIS resources. The consultation phase of the review was completed in April 2001 and the final report is due in August 2001.

During the year the Commission worked to achieve compliance with appropriate national data standards, such as the Geocentric Datum of Australia (GDA94) and the ANZLIC (Australia and New Zealand Spatial Information Council) metadata standard. All Commission projects generating spatial data are now required to use this datum and metadata standard, and the Commission has a strategy to make its existing data comply with these standards. Apart from the first edition of River Murray Mapping (released in 1994), all publicly released Commission spatial data comply with GDA94, and are accompanied by ANZLIC compliant metadata.

In June 2001 the Commission, together with the NSW Department of Urban Affairs and Planning, and the NSW Department of Land and Water Conservation, completed mapping the 1% Annual Exceedance Probability flood (sometimes called the once in one hundred years flood level) for the Edward-Wakool anabranch system adjoining the River Murray in NSW.

Statutory referrals

Under the New South Wales Government's Regional Environmental Plan No 2, development proposals affecting those sections of the River Murray within that State's jurisdiction are submitted to the Murray-Darling Basin Commission for consideration. During 2000-01, referrals were received from a range of bodies including Shire Councils and individuals. The majority of referrals come as a result of Development Applications submitted to NSW local governments.

Collection of statistics reporting the timeliness of responses commenced in November 2000. Some referrals are complex and have the potential for significant impact on the River Murray and environs. In such cases, an appropriate response may take longer than the time recommended in the guidelines (and the timeline requested by proponents).

Statutory referrals since November 2000	
Number of Referrals	26
Average time to respond	10 working days
Max. response time	28 working days
Min. response time	1 working day

A revision to the procedure by which referrals are processed will be undertaken early in July 2001. It is expected that the revised system will include the recording of statistics reporting both the proponent's requested responsiveness, the time taken for the Commission Office to respond and reasons for any delays.

Water Entitlement and Efficiency of Use

Performance Assessment

- Preservation of existing balance between environmental and consumptive uses of water
- Progress towards a water use balance which better meets the environmental needs of rivers
- Permanent interstate water trading achieved progressively across the Basin
- Information Management System in place which enables reporting on irrigation water use efficiency

Performance Report

Preservation of existing balance (the Cap)

The Commission has taken a range of measures to preserve the existing balance between consumptive and environmental use of water resources in the Basin. The aim is to promote the health of the river system and enhance the efficiency of water use. These measures include introduction of the Cap on Diversions, the Sustainable River Audit and permanent Inter-State Water Trading.

In 1995 the Ministerial Council decided to cap diversions in the Murray-Darling Basin (see box). This decision, now called "the Cap", was one of the most important initiatives ever undertaken by Council.

What is the Cap?

The Cap is the balance struck by the Ministerial Council 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.

By limiting future growth in consumptive water use, the Cap promotes the sustainable use of the Basin's resources by:

- preserving the existing security of supply for river valleys,
- helping maintain water quality,
- encouraging the efficient use of water which reduces waterlogging and land salinisation, and
- preventing further deterioration of the flow regime for the environment.

In most of the Basin, the Cap will limit future water use to the volume of water that would have been diverted under 1993-94 levels of development. Targets for each State are approved by the Ministerial Council. Once targets are set, each State is responsible for implementation within its own jurisdiction, allowing them to take account of local circumstances.

It is important to understand what is meant by 1993-94 levels of development. It 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.) that existed in 1993-94, assuming similar climatic and hydrologic conditions to those experienced in the year in question. For example, to establish the Cap target in the 1999-2000 water year, computer models are used to calculate the diversion that would have occurred under the climatic sequence experienced in 1999-2000, if 1993-94 management rules and infrastructure were still in place.

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.

In each State the key tasks are:
- defining and monitoring all diversions,
- detailing the Cap development conditions in each river valley,
- developing and calibrating the computer models which will be used to calculate the Cap target in each river valley at the end of each season,
- obtaining Commission endorsement that the calibrated river valley models are fair and accurate representations of the approved Cap,
- streamlining the processes for collecting and collating diversion data and producing annual reports, and
- adjusting water allocation rules to ensure that diversions stay within the Cap in all designated river valleys.

As directed by the Ministerial Council, the Independent Audit Group (IAG) conducted the annual review of Cap implementation in October 2000 and reported to the Commission in December. A summary of the IAG conclusions for the 1999-2000 water year are shown in the following box on page 67.

In February 2001 the IAG conducted Supplementary Audits of diversions in the Border Rivers and Gwydir River and confirmed their earlier findings that diversions in those valleys have exceeded the long term Caps. In March 2001, based on the IAG's findings for these valleys, the Commission declared New South Wales in breach of the long term Cap. As a result New South Wales has been requested to report the reasons for the excessive diversions in these valleys and the management actions proposed to bring diversions within Cap limits to the next Ministerial Council meeting (see box below).

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 conducted during 2000. The review examined implementation of the Cap and discussed how it could be further refined to meet the needs of communities within the Murray-Darling Basin. The terms of reference did not include re-consideration of the principle of the Cap. The review had four components:
- ecological sustainability of rivers;
- economic and social impacts;

Independent Audit Group Annual Review conclusions

South Australia:
- diversions were within the Cap

Victoria:
- diversions were within acceptable bounds for Cap management

New South Wales:
- diversions in the Border Rivers and Gwydir River valleys exceeded long-term Cap estimates (Subsequently The Review of Cap Implementation found that revised modelling of the 1999-2000 water year has removed the need for a Ministerial statement on the Gwydir for that year as the results suggest that, up to 1999-2000 at least, the Cap has not been exceeded in that valley.)
- New South Wales should report on the underlying reasons for excessive diversions on the Border Rivers including management actions proposed to bring diversions within Cap limits
- diversions were within acceptable bounds for Cap management throughout the remainder of New South Wales

Queensland:
- there has been further significant growth in on-farm storages
- a moratorium notice was issued under the new Water Act 2000 for the Condamine-Balonne and Border Rivers that will limit growth in diversions and the construction of new storages
- water resources plans for various river valleys under the Basin should be finalised as soon as possible to establish Cap targets. This will provide better security of supply to irrigators and help create a river flow management regime that minimises the risk of further environmental degradation

Australian Capital Territory:
- consideration should be given to an interim Cap arrangement that could apply until a final Cap is agreed
- trading rules with the Murrumbidgee should be developed soon to the satisfaction of the ACT to enable finalisation of the ACT Cap

- equity; and
- implementation and compliance.

The review's conclusions and recommendations are contained in the Commission publication *Review of Operation of the Cap* (August 2000). Some key conclusions were that:
- the Cap has supported the Ministerial Council's aim of achieving the ecological sustainability of the Basin's river systems;
- while the Cap does not necessarily provide for a sustainable Basin ecosystem, it has been an essential first step in achieving this outcome; and
- that without the Cap there would have been a significantly increased risk that the environmental degradation of the river system of the Basin would have been worse.

The Council considered the results of the review in August 2000 and agreed to introduce a number of measures to implement the review recommendations. Schedule F, which formalises the Cap arrangements, was incorporated into the 1992 Murray-Darling Basin

Agreement. The Sustainable Rivers Audit, which will assess the Cap as an input to Basin health rather than an outcome in itself, is now being developed (see next section). Other follow up measures are also being prepared.

Progress to improved balance

The Sustainable Rivers Audit (SRA) is being developed to provide a sound knowledge base that will support the development of future policy aimed to get better environmental outcomes from the way in which the rivers in the Basin are managed. The audit will be an annual process that will provide an independent assessment of the health of the Basin's riverine systems. It will note trends over time and predict the long-term ecological consequences of those trends.

The SRA will provide consistent, Basin-wide information, develop a common reporting framework (using comparable information, through time and across catchments), report against a consistent and scientifically robust set of river health indicators and introduce a process that will trigger further investigation or action in response to evidence of deteriorating river health. It will provide information to assist with the development of targets for river health under the new ICM Policy (see KPA 5), and monitoring of progress towards achieving those targets.

Implementation of the audit is ahead of schedule, with the scope of the SRA approved by the Commission in December 2000. Agreed milestones met by June 2001 include terms of reference, an appointment process and the development of a pilot audit in the 2001-02 financial year.

The SRA is being established under the guidance of a Taskforce that brings together senior representatives from the Commonwealth's and each States' natural resource management agencies with responsibilities for environmental health and water quality monitoring. The Taskforce met seven times within the year. Further involvement from the managing agencies occurred through the participation of a much wider field of experts in a series of workshops run by the Cooperative Research Centre for Freshwater Ecology to develop indicators for the SRA.

Permanent interstate water trade

Permanent water trading began in a trial area in the southern Basin in August 1998. Since then the net total of water traded into and out of New South Wales has resulted in a net outflow of 6,156 megalitres (ML). For Victoria the net outflow, after accounting for inflows, is 7,399 megalitres. For South Australia inflows have exceeded outflows by 13,555 megalitres.

A two year review of the pilot water trading project was publicly released in March 2001. The general findings of the review were that:

- trade has increased the value of water, with 75% of the water traded going into new irrigation developments using state-of-the-art water-use technology;
- there have been no measurable adverse social impacts in districts that have sold water; revenue from sales has often been used to finance installation of water-saving irrigations systems; and that
- while 'traded water' has stayed in the river longer and should have had an environmental benefit, it is virtually impossible to measure. However all new enterprises using traded water have had environmental clearance (ie were being developed in suitable sites and largely managed consistent with State environmental standards).

In March the Ministerial Council also noted that work had commenced to bring a proposal for expansion of the water trading area for consideration in March 2002. During the year the vision statement for permanent interstate water trading was approved by Commission and Council.

Information Reporting System for Irrigation

Development of a framework for an Irrigation Management Information and Reporting System (IMIRS) commenced in April 2001. The system will facilitate access to the most recent and complete irrigation data available for the Murray-Darling Basin. The system is intended to help resource managers at the Basin, state, regional and industry levels better understand irrigation characteristics and related trends in the Basin, and more accurately evaluate progress in implementing natural resource management plans.

The IMIRS will build on current data collection networks and support the development of existing programs by facilitating a Basin-wide data collection, storage, analysis and retrieval system. In the longer term the system will provide a framework for stakeholders and data collectors so that consistent, repeatable and reliable irrigation data will be collected in the future.

The system is being developed in two stages. Stage one will survey existing data sources, to develop a report on the accuracy and consistency of the data collected and other issues related to current collection and reporting arrangements for irrigation data, both in the Basin and nationally. It will be completed in November 2001. Stage Two will establish a pilot database and develop an agreed framework for the Basin and possibly nationally, ensuring there are mechanisms for further refinement and on-going support. The second stage will commence in early 2002 and is due to be completed by mid 2004.

The project has already produced a web template for presenting national irrigation information on the Australian Natural Resources Atlas. It presents an overview of Australian irrigation derived from the National Land and Water Resources Audit project and several other current national or Murray-Darling Basin data sets and reports.

Sunraysia, a major irrigation region in the Basin
The Irrigation Management Information and Reporting System is being developed to provide access to the most recent and complete irrigation data available for the Murray-Darling Basin.

Water Quality and Flow Management

Performance Assessment

- Environmental entitlements managed to achieve maximum environmental benefit
- Achievement of water quality outcomes of the Salinity and Drainage Strategy
- Strategies in place to protect future water quality in the Basin's rivers
- Achievement of agreed water quality objectives for River Murray evaluated through monitoring

Performance Report

Environmental Flows

A draft Environmental Flows and Water Quality Management Plan (EFWQMP) is to be presented to the Ministerial Council by March 2002. Options to implement elements likely to be included in the plan were presented to the Council in March 2001. In response, Council directed the Commission to establish and fund the function of an Environmental Manager, and to develop an options paper addressing the strategic issues, for Council's next meeting. The paper is to detail:

- a range of levels of increase in environmental flows;
- the costs and benefits associated with each option; and
- consultation requirements.

Council also approved the following actions:

- fish passages to be established from the Murray Mouth to Hume Dam within the next 5 years;
- thermal mitigation options at Hume Dam to be investigated;
- implementation of interim operating rules for the next three years, for the environmental allocation of water from the River Murray to improve the health of Barmah-Millewa Forest;
- development of a Basin-wide policy for the accounting of environmental water; and
- a review of the operating procedures of the Commission's weirs and barrages along the River Murray, to find the most effective options for watering the Basin's riverine and estuarine ecosystems.

To assist with the development of the EFWQMP a number of other major studies were also commissioned.

The options presented to Council in March 2001 are now being reviewed by members of the Scientific Panel, a group of eminent scientists from a range of disciplines, drawn from agencies and research bodies active in the Basin.

Salinity and Drainage Strategy Water Quality outcomes

The *Salinity and Drainage Strategy* for the Murray-Darling Basin came into effect on 1 January 1988 and was formally adopted by the Ministerial Council in April 1989. The purpose of the Strategy was to provide a framework for joint action to address waterlogging and land salinisation in the Murray Valley and improve the water quality of the lower River Murray (see box).

Salinity levels in the River Murray during the year 2000-01 were below the long-term average annual salinity of both the pre and post Strategy periods (pre and post 1988). For more information see the report on KPA 2 in Chapter three.

The Barrages near the Murray Mouth
The River Murray Environmental flows project is being developed to improve flow conditions and the riverine environment throughout the River Murray and the lower Darling River.

The Salinity and Drainage Strategy Register was updated during the year to include revisions to a number of entries. The studies underpinning the revisions were carried out as part of the Salinity and Drainage Strategy Review. To date, jointly funded schemes have achieved a 73 EC reduction in average salinity at Morgan against the S&D Strategy target of 80 EC. The Commission has also initiated construction of the Waikerie Phase II(A) and II(B) projects which on completion will result in further reductions and meet the S&D Strategy target.

During the year, it was estimated that new irrigation developments in South Australia that occurred after the Strategy was introduced in 1988, could result in an estimated gross salinity increase at Morgan of 30 EC. South Australia has put in place a number of on-ground works designed to offset this increase but their overall impact has not yet been calculated. South Australia has agreed to complete the assessments for the net impact of post-1988 actions and bring its commitment to the S&D Strategy into balance by December 2002. In the meantime, it has been noted in the Register that the salinity impact of post 1988 development in South Australia is yet to be assessed.

Salt interception schemes play a critical role under the 1988 Salinity and Drainage Strategy. In 1999 River Murray Water commissioned a study to assess the benefits of an integrated management approach to salt interception schemes within the Basin and to identify schemes which should be managed in this way. This study concluded that in the Sunraysia Region, the potential gains to be had from integrated management would be considerable and recommended that the realignment of operating responsibility for schemes in this region should be addressed as a priority.

As a consequence a comprehensive study to investigate possibilities for optimising salt interception in the Sunraysia Region was initiated in November 2000. The study will take a regional 'no borders' approach and incorporate the Mildura-Merbein, Buronga, Mallee Cliffs and Psyche Bend salt interception schemes. It will investigate the redesign of the schemes based on currently available technology to improve interception capability. This project is to be managed by the New South Wales Department of Land and Water Conservation through a Steering Committee with stakeholder membership from New South Wales, Victoria and River Murray Water.

The Murray-Darling Basin Salinity & Drainage (S&D) Strategy

The S&D Strategy provides a framework for joint action by the New South Wales, Victorian, South Australian and Commonwealth governments to effectively manage the problems of waterlogging and land salinisation in the irrigation districts of the Murray Valley in New South Wales and Victoria and river salinity in the lower Murray River. The Strategy is based on a balance between engineering (interception schemes which divert saline groundwater that would otherwise flow into the river) and non-engineering (land and water management) solutions, which tackle both river salinity and land salinisation. Under the Strategy, no State is to construct works or approve any proposal that will have an adverse impact on the salinity of the River Murray unless it has previously earned "Salinity credits" by contributing to salinity mitigation works.

The Commission maintains a Register to account for the salinity "Credits" and "Debits" resulting from projects that increase or decrease river salinity under the S&D Strategy. The "Credits" are associated with salt interception schemes (funded by South Australia, Victoria, New South Wales and the Commonwealth). "Debits" result from activities by the States (New South Wales, Victoria and South Australia) such as construction of irrigation drains, groundwater pumps, new irrigation development and wetland flushing (amongst others). The Register is also used to record changes to operational policies and works that have an impact on river salinity.

The effect of actions detailed on the Register are summarised in the table below. The updated Register has been included on the MDBC Web site.

Table 6 Summary of State Salinity Credits and Debits recorded in the Salinity & Drainage Strategy Register as at January 2001.

Component	Victoria	New South Wales	South Australia
Credits from Joint Schemes	14.54 EC	14.54 EC	0 EC
Debits from Joint Schemes	-0.92 EC	-0.92 EC	0 EC
State Salt Interception Schemes	4.77 EC	0.16 EC	0 EC
Total Drainage Impact	-11.97 EC	-8.65 EC	TBA**
Current Balance (Available Credits)	6.43 EC	5.14 EC	TBA**

Note: all figures shown are "Equivalent EC" at Morgan

In March 2001 the Victorian Government offered the Pyramid Creek Salt Interception Scheme as a "joint" works as defined in Schedule C of the Murray-Darling Basin Agreement. Under this arrangement the works would be funded by the partners to the Agreement (excluding Queensland and the ACT) with the resulting salinity credits to be shared according to the funding ratio.

The proposed Groundwater Interception Scheme will intercept saline groundwater before it impacts on the Ramsar listed wetlands (Kerang Lakes) and the River Murray and will provide 5.3 EC benefits to the River Murray at Morgan. In addition it is proposed that a financial arrangement will be reached with a commercial operator to harvest salts from this interception works to offset the operations and maintenance costs of this scheme. To this end, negotiations are under way.

Future protection of water quality

A review of the *Salinity and Drainage Strategy* was completed in July 2000 and a set of recommendations provided to the Basin Salinity Management Strategy Project Board. The review assessed the strengths of the existing Strategy, pointed to areas that could be improved and proposed the integration of the existing Strategy with the new Basin Salinity Management Strategy.

A draft Basin Salinity Management Strategy was released for public comment in early September 2000 at the same time as the draft Integrated Catchment Management Policy (see KPA 5). The draft Strategy is the first Basin strategy to be developed consistent with the ICM Policy. The draft strategy was prepared with substantial input from all six partner governments, the Community Advisory Committee and technical experts, and took account of the Salinity and Drainage Strategy review findings. Key elements of the draft strategy are shown in the box.

At the end of the three month feedback period, approximately 200 submissions had been received on the draft strategy. Following an evaluation of public comments, the draft strategy was revised for Council consideration in March 2001. Council endorsed the general thrust of the revised strategy and agreed that it should be finalised for public release early in the second half of 2001.

As an immediate response to the on-going deterioration occurring as a result of the 'legacy of history' of land management activities in the Basin, and to gain more time for biological options such as revegetation to start having an impact, the Ministerial Council agreed in March 2001 to a joint works program for salt interception of $60 million over seven years.

In 1994 the Commission developed an Algal Management Strategy to address water quality problems associated with blue-green algae blooms in the river system. The Strategy was reviewed during 1999-2000 and the report published in November 2000. The review recommended that the Strategy be subsumed into implementation of the new Integrated Catchment Management policy through the development of nutrient targets, as it was no longer considered useful to manage algal problems with a single-issue focus. A proposal is currently being developed in conjunction with jurisdictions to achieve this.

Draft Basin Salinity Management Strategy

Key features are

- a Basin salinity target at Morgan in South Australia;
- salinity targets for each tributary valley;
- within valleys, communities in consultation with State governments, will develop their own strategies to take account of regional priorities; and
- the various State governments will undertake other salinity re-mediation activities such as groundwater interception projects, at strategic points.

Discussions between communities and State governments about the interim end-of-valley targets will take place in the near future according to an agreed time table which varies according to State circumstances. The interim targets for particular river valleys could change as a result. However if targets are eased, state governments will need to compensate with works elsewhere to make sure that the overall contribution from their State to the Morgan total does not increase.

The draft Basin Salinity Management Strategy is designed to allow considerable variation in the design of within-valley salinity management plans. Each region will be able to take account of its particular mix of assets, forms of agriculture and plans for future development. The strategy will use a range of approaches to manage salinity. Some, such as dilution flows and groundwater pumping are very effective in controlling the symptoms, but do not deal with causes. Others, such as targeted re-vegetation and changed farming systems will eventually have a major impact on causes such as increased recharge to groundwater.

Water Quality Objectives

Comprehensive water quality objectives for the River Murray are being developed through the River Murray Environmental Flows project. In the interim the Commission is working to maintain an acceptable level of water quality in the rivers of the Basin. During the year the Natural Resources Management Branch provided timely advice to River Murray Water regarding high algae counts in the River Murray between Tocumwal and Mildura during the summer period.

Specific water quality objectives are being developed as part of the Environmental Flows Project for the River Murray with the aim of establishing an agreed set of objectives in 2001-02.

With the agreement of the Lake Victoria Advisory Committee, Lake Victoria was used to store additional water during the year to enhance the flood peaks in late 2000, providing environmental benefits to the floodplains in South Australia.

Land and Floodplain Management

Performance Assessment

- Improved matching of landuse with land capability to reduce offsite impacts of dryland agriculture
- Development on floodplains take account of the siting and nature of land use activities and significant riparian and floodplain habitat
- Improved management of total water resources

Performance Report

Land use/land capability

The Commission is committed to reducing the offsite impacts of dryland agriculture through improved matching of land use with land capability. To this end, the Commission commenced its 'Landmark' (sustainable land use) project in 1999 to assess land use against land capability across the dryland areas of the Basin. Analysis and development of policy options to promote sustainable land use in those regions commenced during the year 2000. Draft criteria for assessing the degree of match between land use and land capability, based on wide consultation with industry, environmental and agency bodies, were also developed during the past year.

It is recognised that part of matching land use with land capability will include extensive revegetation work. A framework to support the establishment of revegetation on such a scale is being developed under the title of "Vegetation Bank". The Ministerial Council agreed in March 2001 that the concept of a Vegetation Bank be further developed, as a component of the Basin Salinity Management Strategy. In this context a major proposal involving the establishment of 20,000 ha of plantation forestry across seven catchments within the Basin has been prepared by the Commission and submitted for funding consideration under the Commonwealth Greenhouse Gas Abatement Program.

Floodplain management

Over the past twelve months the Floodplain Management Project Board has consulted widely with stakeholders in the development of a draft Murray Darling Basin Floodplain Management Strategy.

The Macquarie River
Targets for tributary rivers in the Basin and an overall target for the River Murray at Morgan are fundamental to the Murray-Darling Basin Salinity Management Strategy. Within each tributary valley, State governments will negotiate with communities to develop a strategy to protect key values and assets.

A draft Strategy was completed in June 2001 and will be submitted to the Commission in October 2001. The draft Strategy identifies principles for floodplain management, knowledge gaps in terms of current understanding of flood behaviour, and stronger processes for ensuring coordinated floodplain management action throughout the Basin.

During the year the Commission coordinated a project supported by a consortium of nine government agencies and private companies to develop elevation data covering approximately 1.6 million hectares of the southern Murray Darling Basin. Such data is a key knowledge gap in developing floodplain management strategies.

Management of total water resources

In late 2000, the Ministerial Council approved the development of a Commission Groundwater Management Strategy as recommended by the Independent Audit Group in their review of implementation of the Cap. This strategy will provide a framework for sustainable conjunctive use of ground and surface waters in the Basin and thereby protect the integrity of the Cap.

To support the development of the strategy, projects have been initiated to:
- provide 1:250,000 mapped detail of groundwater resources in the Murray-Darling Basin,
- predict future demand for groundwater resources,
- examine the economic, environmental, and social implications of this demand, and
- quantify the relationship between groundwater and surface flows.

Groundwater modelling guidelines to provide consistent modelling standards across the Basin were developed and released in June 2001. These guidelines are currently under consideration for endorsement by the National Groundwater Committee.

Biodiversity/Nature Conservation

Performance Assessment

- Strategies in place to protect riverine and floodplain habitats and biodiversity
- Nature conservation management is integrated within agricultural land use systems in dryland and irrigation regions

Performance Report

Riverine and floodplain habitats and biodiversity

The Commission endorsed the Native Fish Management Strategy (NFMS) in July 2000 as an exposure draft, noting that targets and accountabilities were to be developed in consultation with the jurisdictions. The draft strategy was developed under the guidance of the Commission's Fish Working Group (FWG), which provided both jurisdictional scrutiny and quality assurance. The FWG will be the chief vehicle for oversighting the implementation of the strategy when finalised.

In March 2001, the Ministerial Council agreed to allocate $10 million over the next five years to build fish ladders on all of its locks and weirs on the Murray River. Along with improvements at existing structures such as Yarrawonga and Torrumbarry, the program will result in effective fish passage from Lake Hume to the sea. Concurrently, a Basin-wide program for fish passage is being developed under the umbrella of the NFMS. It will include the construction of fish passages to bypass priority barriers in Queensland, New

South Wales, South Australia and Victoria, remote operation of some gates on the barrages in South Australia, and the examination of other structures at sites such as Lake Victoria and the Chowilla anabranch.

A Basin-wide action plan on fish passage has been developed by the FWG. As part of this action plan, a Fish Passage Reference Group has been established to integrate hydrology, hydraulics and biology at a broad, strategic level and at an individual site-specific level and to ensure that appropriate designs are used in the structures to be installed across the Basin as part of the new fishways program. The Commission is also finalising a database that will provide critical location and other technical details for the 4,000 or so dams, weirs, culverts and other structures that impede the migration of native fish within the Basin.

Integrating conservation and agriculture

In preparation for the stocktake of the Basin's environmental assets to be completed by June 2003, strong links have been established between the Commission, CAC, and CSIRO. Discussion of the roles and responsibilities of these various groups for the stocktake have commenced. Initial recommendations for the establishment of terrestrial biodiversity projects will be available by the end of 2001. They will provide a foundation for the subsequent development of Commission policy for terrestrial biodiversity and nature conservation.

The Commission continues to be a partner in the Joint Venture Agroforestry Program (RIRDC) and has encouraged this program to increase its focus on the integration of nature conservation with agro-forestry.

Cultural Heritage

Performance Assessment

- Cultural heritage places on land managed for the Commission protected as agreed
- Improved consideration of cultural heritage in relevant Commission projects

Performance Report

Protecting cultural heritage places

The Commission is managing the Lake Victoria storage to protect cultural heritage values, maintain environmental values and operate the Lake as a water storage. A Plan of Management originally scheduled for completion by January 2001 will provide the basis for achieving these objectives.

Major progress was made during the year to prepare the Plan with the completion date extended to ensure appropriate consultation with the Lake Victoria Advisory Committee. Four workshops with the Committee were conducted from October 2000 to April 2001 to review aspects of the Plan. The Plan is now largely completed, but still requires final endorsement by the Committee. It must then be approved by the Commission and the New South Wales National Parks and Wildlife Service.

An issue still outstanding is the finalisation of an operating strategy which will alter the way Lake Victoria is managed. The aim will be to minimise the effect of operations on the cultural heritage, while still ensuring that water resources can be guaranteed. The Commission has been working closely with the New South Wales National Parks and Wildlife Service on this issue. It is anticipated that the operating strategy will be agreed early in 2002 and the Plan of Management finalised by August 2001.

The Plan of Management will formalise a number of management practices already in place. Although the Plan is not finalised, the Commission is implementing protective measures in accordance with the strategies agreed by the Advisory Committee, and complying with the requirements of the Consent granted by the New South Wales National Parks and Wildlife Service under section 90 of the NSW National Parks and Wildlife Act. This includes the appointment of a Cultural Heritage Manager and the continued involvement of the Lake Victoria Advisory Committee and the Barkindji Elders Committee in management decisions relating to cultural heritage. Both the Lake Victoria Advisory Committee and the Barkindji Elders Committee are resourced and supported by the Commission.

Throughout the reporting period, the lake was operated in accordance with the Consent, and with the approval of New South Wales National Parks and Wildlife Service. Monitoring of the works implemented to protect the burial sites during the year confirmed their ongoing effectiveness. A number of significant improvements in the natural environment have occurred as a result of the changed operations over the previous few years, including substantial natural regeneration of fringing vegetation on the southern lakeshore such as red gums, understorey shrubs and grasses.

Improved consideration of cultural heritage

During the year the Commission and its government partner the NSW Department of Land and Water Conservation (DLWC) collaborated with a working group of the Murray and Lower Darling Indigenous Nations to develop a draft memorandum of understanding. The memorandum will provide guidelines for consultation with the Nations about land and water management issues of common interest. The draft will be finalised after members of the working group have discussed the proposal with Aboriginal communities in the Murray-Lower Darling region.

The Commission also arranged for a DLWC Aboriginal Natural Resource Officer to be seconded to the Office for six months from July 2001 to manage a project aimed at identifying key cultural heritage and natural resource management issues of Basin

Indigenous communities relevant to the Commission's work. It will consider current impediments to Indigenous communities being involved in the Murray-Darling Basin Initiative and mechanisms to help address these impediments.

The Community Reference Panel for the Commission's Environmental Flows project includes an Indigenous representative, and additional resources will be provided in 2001-02 for engagement with Indigenous communities along the River Murray.

KPA 7 Supporting On-ground implementation

Sub-output: investment programs for, and frameworks for directing, on-ground works and measures aimed at meeting the objectives of the Basin Sustainability Plan (BSP)

Performance Assessment

- Projects funded under the 85% Threshold component of Murray-Darling 2001 (MD2001) meet MD2001 objectives and are consistent with BSP objectives
- Targeted and Irrigation Water Use Efficiency (IWUE) components of MD2001 address agreed priorities and outcomes
- Decision support tools in place to help direct Commission and other investments
- Commission on-ground investment from 2001-02 directed to achieving targets under new ICM policy

Performance Report

In 2000-01 the combined Commonwealth and state investments under Murray-Darling 2001 contributed to Basin sustainability sub-programs as shown in Table 7.

Table 7 Allocations under the Murray-Darling 2001 Program in 2000-01 according to BSP sub-program

Sub-Program Area	Funding Allocation ($m)
Riverine environment	14.8
Irrigated regions	35.0
Dryland regions	17.6
Management implementation	3.10
Sub-total	70.5
Plus Commonwealth unmatched funds	6.0
Total	76.5

Note: These figures are allocations and include the threshold, irrigation water use efficiency and targeted components of MD2001. Actual expenditure does not always match the initial allocation.

MD2001 Threshold component

During 2000-01, in accordance with previous practice, 85 per cent of MD2001 funds (the threshold component) were allocated to States on an agreed basis, as follows:

- New South Wales 39.8 per cent
- Victoria 39.8 per cent
- South Australia 9.95 per cent
- Queensland 9.95 per cent
- Australian Capital Territory 0.5 per cent

All projects funded met the MD2001 eligibility criteria and objectives and hence were consistent with the objectives of the BSP.

MD2001 Targeted component

In 2000-01, $10.35 million was set aside for the targeted component of MD2001 to accelerate priority activities needed to achieve Basin outcomes in salinity and algal management. To achieve this, funds were directed to specific catchments on the basis of priorities identified in the 1999 Basin Salinity Audit and the 1994 Algal Management Strategy. Projects totalling $9.0 million were approved for funding and include:

- large scale landscape change through revegetation and changes to farming practices in New South Wales and Victorian catchments which are major contributors to salt and nutrient loads;
- improved groundwater monitoring in Queensland which will ultimately assist in the setting of salinity targets in Queensland; and
- preliminary design of a groundwater control scheme to redress degradation due to saline groundwater of the Chowilla floodplain, a Ramsar listed wetlands.

An independent review of the targeted component was completed in December 2000 and found that stakeholders were generally supportive of a targeted approach but would have preferred both longer time periods in which to develop their proposals and a long term commitment to funding (the targeted component was established as a one year trial). The review also noted that future Commission strategies needed to have more clearly defined priority actions and outcomes in order to guide the targeting of funds.

Irrigation Water Use Efficiency

In 2000-01, $6 million was allocated on a competitive basis to priorities for irrigation water use efficiency. Projects totalling $2.97 million were approved for funding. All projects met Commonwealth guidelines for the program; these guidelines included broad priorities and outcomes.

Decision support tools

No progress has been made in developing generic decision support tools to direct Commission and other investments.

Investment targeted to ICM

On 3 November 2000 the Council of Australian Governments, comprising the Prime Minister, Premiers and Chief Ministers and the President of the Australian Local Government Association, agreed to a national plan which would take actions on salinity and water quality problems in highly affected catchments and regions across Australia during the next seven years. An Intergovernmental Agreement has been developed and provides the foundation for detailed agreements with the States and Territories to implement the Action Plan.

KPA 8. Monitoring Natural Resources Condition

Sub-output: a framework for monitoring and reporting changes in the condition of the Basin's natural resources and the outcomes of investment in natural resources planning and management

Performance Assessment

- Framework in place to monitor, evaluate and report on:
  1. the condition of the Basin's natural resources and pressures associated with their use
  2. outcomes of investments in natural resources planning and management activities aimed at improving the condition of the Basin's natural resources
  3. future natural resource management investment needs
- Commission policies and priorities for on-ground action take account of reports on Basin health, investment outcomes and future investment needs
- Monitoring, evaluation and reporting for individual Commission policies, strategies and programs is carried out within the above framework once it is adopted

Performance Report

A broad framework for monitoring the condition of the Basin's natural resources has been agreed as part of the ICM Policy (see KPA 5). This framework will, over the next decade, provide a robust system for tracking the health of the Basin's catchments, and of the Basin itself.

Investment reporting undertaken during 2000-01 has resulted in the development of a three year rolling Basin Investment Plan for 2001-02 to 2003-04, and an Annual Investment Report for 1999-2000. The Plan indicates that over the period 2001-02 to 2003-04, expected investment in natural resources in the Basin is $2.2 billion, as shown in the following three tables.

Proposed investment by Key Result Area 2001-02 to 2003-04

	$m
Sustainable Agricultural Productivity	940
Water Quality	758
Nature Conservation	455
Cultural Heritage	20
Management Implementation	36
Total	2,210

Proposed investment by Sub-program Area 2001-02 to 2003-04

	$m
Riverine Environment Management	660
Irrigated Regions Management	850
Dryland Regions Management	665
Management Implementation	35
Total	2,210

Proposed investment by funding source 2001-02 to 2003-04

	$m
Commonwealth Government	243
State Governments	1004
Local Government*	71
Regional Organisations	300
Community	592
Total	2,210

Source - Basin Investment Plan 2001/2002 to 2003/2004, MDBC 2001.

The Annual Basin Investment Report for 1999-2000 shows actual investment for 1999-2000 of $694 million, as shown in the following three tables:

Investment by Key Result Area 1999-2000

	$m
Sustainable Agricultural Productivity	268
Water Quality	243
Nature Conservation	148
Cultural Heritage	2
Management Implementation	33
Total	694

Investment by Sub-program Area 1999-2000

	$m
Riverine Environment Management	181
Irrigated Regions Management	274
Dryland Regions Management	206
Management Implementation	33
Total	694

Investment by funding source 1999-2000

	$m
Commonwealth Government	68
State Governments	355
Local Government*	97
Regional Organisations	9
Community	165
Total	694

(Note: the final total, has been affected by the rounding of the figures)

Work will begin in 2001-02 to develop a framework to bring together reporting to Commission and Council on a range of issues for the Basin, including reporting associated with the Basin Salinity Management Strategy, the Cap on diversions, the Sustainable Rivers Audit, and the River Murray Environmental Flows project. The development of a fully integrated monitoring and reporting framework will take the best part of the next decade, with the ICM Policy indicating that by 2008, the Council will have a system for reporting core signals of catchment health for each of the major catchments of the Basin.

Chapter 5

Partner Relations

Output: effective inter-governmental and government-community partnerships which lead to strong commitment to the *Initiative* and well informed Ministerial Council decisions.

5.1 Program support and administrative structures

During 2000-01 the Commission was advised by 10 project boards, comprising Commissioners or Deputy Commissioners, with CAC members sitting on three. Names of members of the project boards are shown in appendix D.

The Commission continued to be advised directly by the following bodies during the year.

Water Business

- The River Murray Water Advisory Board advises the Commission on the operation of River Murray Water which is an internal business unit of the Commission. The Advisory Committee includes representatives from each of four Governments (Commonwealth, New South Wales, Victoria and South Australia) and an independent business expert, and is chaired by the Commission's President.

Natural Resources Business

- The Water Policy Committee provided policy advice on water issues, including implementation of the Council of Australian Governments (COAG) water reform agenda, the cap on growth in water diversions, water quantity, allocation and sharing, and interstate trading.
- The Basin Sustainability Plan Working Group provided advice on the natural resource management objectives of the Basin Sustainability Plan, focussing on strategic priorities for knowledge generation and for investment in on-ground works and measures.
- The Integrated Catchment Management Taskforce advised the Commission on the development of the new ICM policy for the Basin and the views of stakeholders on the draft policy. Following the launch of the final ICM policy (see chapter 4, KPA 5), the taskforce was replaced by an ICM Policy Committee to support the Council and Commission in directing the policy's implementation.
- A Human Dimension Group was established in July 2000 to advise the Commission on social, cultural, institutional and other human dimension aspects of the Commission's work. In April 2001 it became a subcommittee of the ICM Policy Committee.

Business Administration

- The Finance Committee advised on budgetary and other financial issues, corporate planning and corporate governance matters.

The project boards and the above bodies were supported by 25 groups that brought together technical and specialist expertise from agencies of the partner governments and representatives of the Community Advisory Committee. All committees, working groups and other bodies supporting the Commission's work are listed in appendix F.

5.2 Performance Reports

KPA 9. Services to partners

Sub-output: services which ensure effective participation of the Community Advisory Committee (CAC) and partner governments in the development of Commission policies and programs, and effective participation of stakeholders in relevant Commission activities

Performance Assessment

- Services in place for effective CAC participation in Commission activities as an equal partner
- Services in place for effective participation of partner governments in Commission activities
- Processes in place for effective participation of stakeholders in key Commission projects

Performance Report

CAC participation

The Community Advisory Committee met on four occasions during the year with one of these a joint meeting with the Commission. The CAC's Chairman attended all Ministerial Council and Commission meetings during the year, and CAC members participated in many of the meetings and workshops associated with Commission activities. This enables community participation and the provision of a grounded community perspective in the development of programs and projects. The CAC considers these arrangements an outstanding example of true commitment to inclusive community-government partnerships.

During the year, members of the Community Advisory Committee participated on:

- the Water Policy Committee, the Finance Committee and the Integrated Catchment Management Policy Committee;
- seven Working Groups: Basin Sustainability Plan, Dryland Issues, Irrigation Issues, Riverine Issues, Human Dimension Group, River Murray Environmental Flows; and Communication and Human Dimension Issues;

- the Integrated Catchment Management and Basin Salinity Management Task Forces; and
- Project Boards for Environmental Flows and Water Quality Objectives for the River Murray, and Interstate Water Trade.

CAC members are also the community representatives on a number of steering committees and reference panels for specific SI&E projects.

CAC members responded to a questionnaire regarding the services provided by the CAC Secretariat in the Commission Office. Fourteen responses were provided. In general, CAC members responded that the efforts by the Commission Office and the CAC Secretariat were very good, given the limited resources. Concerns were expressed over the infrequency of meetings – many members felt that three meetings per year was not enough to adequately address the issues and maintain momentum and involvement of the community. Some members commented that the increasing emphasis being put on community involvement in policy making was not reflected in the resourcing of the CAC, nor in recognition of its needs, including the frequency and duration of meetings. Many of the respondents noted that there was a significant difference between the CAC Secretariat and the rest of the Commission Office in the quality of services provided to CAC members participating in Commission activities. The table below deals only with services provided by the CAC Secretariat to CAC members.

Table 8 CAC satisfaction with support provided by the CAC Secretariat for effective participation in Commission activities

Support services provided	Rating* and % respondents				
	V	P	S	G	VG
Ability of committee to address priority issues	-	-	35%	50%	15%
Agenda papers (including quality of information, strategic approach, timeliness of distribution, and method of distribution)	-	-	7%	21%	72%
Efficiency and effectiveness of meetings (including use of time, handling of subject matter, opportunity for input, frequency of meetings)	-	-	29%	57%	14%
Coordination of follow-up actions (including opportunity for further CAC member involvement in Basin activities, out-of-session meetings and teleconferences and general background briefing on issues)		7%	7%	43%	43%
Responsiveness to specific requests by CAC members regarding information on Commission activities, and appropriateness of responses	-	-	-	62%	38%

* V = Very Poor; P = Poor; S = Satisfactory; G = Good; VG = Very Good

Following the successful 1998 and 1999 workshops, the Committee and the Commission held their third joint workshop in June 2001. The previous two workshops had resulted in an agreement to develop an Integrated Catchment Management framework (the ICM Policy) and a set of values and principles for integrated catchment management.

This third workshop focussed on identifying what needs to change to enable successful implementation of integrated catchment management in the Basin. Workshop participants also considered how to measure progress in this implementation, thus beginning the process of developing performance measures for integrated catchment management in the Basin. In addition, significant effort was made to ensure that the way forward is guided by the values and principles agreed to by the Ministerial Council and the Community Advisory Committee.

Both the Committee and the Commission value these joint meetings as important opportunities to develop respect and trust between the community and government. The joint workshops also provide opportunities for community members to further develop relationships with Commissioners and Deputy Commissioners from other parts of the Basin, increasing interaction and knowledge exchange across the Basin.

Participation of partner governments

The main mechanism for effective participation by partner governments is through their representation on various committees and other groups advising the Commission. Each partner government is represented on almost every committee, working group and taskforce. Project boards usually comprise three members who are Commissioners or Deputy Commissioners selected by the Commission to fill the board roles of 'Executive', 'User' and 'Supplier'. Most committees and boards meet at least 3-4 times a year and often more frequently.

The Commission Office provides support services to ensure the effective operation of these groups. This includes preparing and distributing agenda papers, organising and helping to run meetings, coordinating follow-up actions and responding to other relevant requests.

A small sample (n=25) of officers nominated by each partner government was interviewed to assess the level of each government's satisfaction with the services provided by the Commission Office. In general the partner governments indicated that the support provided did enable them to participate effectively in Commission activities over the year (see table 9). The main issues arising from the feedback related to the timeliness of distributing agenda papers and the lack of clarity about the roles, responsibilities and reporting relationships of the various committees. These issues will be addressed during 2001-02, as will other suggestions arising from the feedback.

Table 9 Partner governments satisfaction with support provided for effective participation in Commission activities.

Support service provided	Rating* and % respondents				
	U	P	S	G	VG
1. Relevance of committees/groups to address priority issues.	-	8%	36%	56%	-
2. Agenda papers (including quality of information, strategic approach, timeliness of distribution, method of distribution).	-	16%	56%	24%	4%
3. Efficiency & effectiveness of meetings (including use of time; handling of subject matter; opportunity for input).	-	12%	44%	44%	-
4. Coordination of follow-up actions.	-	4%	16%	72%	8%
5. Responsiveness to specific requests regarding participation in Commission activities and appropriateness of the responses.	-	4%	20%	68%	8%

* U = Unsatisfactory; P = Poor; S = Satisfactory; G = Good; VG = Very Good.

Participation of other stakeholders

CAC involvement (see above) is a key mechanism for community input to Commission activities. However additional opportunities are provided for other stakeholders to be involved in key Commission projects. During 2000-01 special processes continued or were put in place to allow wider stakeholder participation in key projects and activities carried out as part of the Commission's Water Business and Natural Resources Business (see box page 93).

During the year the MDBC President reviewed the operation of the Barmah Millewa Forum, and made a number of recommendations which were adopted by the Commission to improve the Forum's method of operation and increase trust and communication among all participants. A review was also commenced of the stakeholder views about the engagement processes used for the draft ICM Policy and draft Basin Salinity Management Strategy, and to identify their preferences for future engagement in Commission activities. No other formal feedback was sought during the year from other activities designed to allow stakeholder participation.

Many investigations projects carried out under the Commission's Strategic Investigations and Education (SI&E) funding program involve extensive consultation with key stakeholders. The three projects in the box on page 94 are examples of these.

Projects and activities	Mechanisms for stakeholder participation
Water Business	
Hume to Yarrawonga River Management	An Advisory Committee, comprising government and community representatives and riparian landowners met regularly during the year (see section 3.2).
Intentional flooding along River Murray	In late 2000 River Murray Water released water for environmental flows to Barmah Millewa Forest in NSW/Victoria, and to wetlands in South Australia taking advantage of seasonal flows. Consultation on the former was through members of the Barmah Millewa Forum (see below). In the case of the South Australian reach of the river the agencies organised extensive publicity in the local media.
Lake Mulwala Land and On-water Use Management Plan	In May 2000 a Project Steering Committee was set up to assist with the development of a Plan of Management for Lake Mulwala. The Committee, which includes State and Local government, catchment, and tourism representatives will help develop and implement processes for wider community engagement.
Lake Victoria Heritage	The Lake Victoria Advisory Committee held 8 meetings and workshops during Cultural the year to help develop a Cultural Landscape Plan of Management. The Barkindjii Elders Committee met formally eight times and held a number of field trips to Lake Victoria to consider specific cultural heritage issues. (See also chapter 4, KPA 6, Cultural heritage).
Modification of Passes	In 2000 River Murray Water formed a reference group including skippers, Navigable lockmasters, environmental managers, house boat and tourism operators, marine safety officers and fishers to provide comment on options for improving navigable passes at locks and weirs on the Murray. At a meeting in March 2001 the group expressed its unanimous support for the preferred option.
Yarrawonga Weir Remedial Works	Two stakeholder briefings and site inspections were held during the design and approval stages of the works (see chapter 3, KPA 1) to ensure that stakeholder concerns were addressed. Prior to construction commencing in July 2001, a Community and Environment Reference Group was set up to monitor performance and provide ongoing feedback on community concerns.
Natural Resources Business	
Development of ICM Policy and Basin Salinity Management Strategy	Draft reports were widely distributed in hard copy and through the web. During the three month public consultation period meetings were organised across the Basin and in relevant capital cities to discuss the documents and facilitate feedback.
Environmental Flows and Water Quality Objectives	A Community Reference Panel comprising 22 members of the Basin community was established in August 2000 to provide feedback on options developed by the Project Board; six meetings were held during the financial year.
Barmah Millewa Forest	Barmah Millewa Forum comprising 23 members from community organisations and the government partners continued to meet during the year to provide advice to the Commission on the management of the forest.

Examples of Strategic Investigations and Education Projects

Tools to investigate and plan for improved management of salinity: a joint project with Land & Water Australia under the National Dryland Salinity Program (NDSP) that is providing a range of information for catchment managers and farmers on the management of dryland salinity; information on the NDSP website is being actively sought by a wide range of people within the Basin, throughout Australia and overseas.

Review of Natural Resource Planning and Implementation Processes: a joint project with Land and Water Australia under the Commission's Irrigated Regions Program that has developed a "model planning process" framework and an assessment methodology for natural resources management, based on the experiences of community and agency representatives involved in regional land and water management planning processes over the past 10-15years in the Basin in irrigated areas. The project workshops generally, and the project steering committee unanimously have endorsed the project outputs as highly valuable tools that should be widely distributed to nrm managers.

Feasibility of an environmental audit and certification scheme for irrigation in the Basin: a complex project exploring the feasibility of establishing an environmental audit and certification scheme to facilitate wider and more rapid adoption of improved NRM practices in irrigated regions in the Basin. Determining the feasibility of such a scheme, the related significant drivers for change and the likely NRM outcomes involved widespread consultation with representatives of the cotton, rice, dairy, viticulture and water industries, as well as regionally based resources managers. A national workshop on the outcomes of this project in November 2000 supported the findings of the project and provided the foundation to develop the objectives and approach for further work on developing such a scheme.

KPA 10. Services to Council

Sub-output: services which support effective Ministerial Council decision-making

Performance Assessment

- Support services provided as agreed

Performance Report

The Commission Office provides support services to ensure the effective operation of meetings and out-of-session decisions by the Ministerial Council. This includes preparation and distribution of agenda papers, organising and helping to run meetings and the paperwork associated with obtaining out-of-session decisions. The Ministerial Council meets at least once each year, and when a decision is required outside of the meeting timeframes, an Out-of-Session protocol is used.

In 2000-01, five out-of-session decisions were taken by the Council and two meetings were held.

Ministerial Council

As the services to Council are very similar to those provided to the Commission, the feedback received from the partner governments under KPA9 – Services to Partners, above, can be extrapolated for use here and the relevant comments applied, as the services are identical. Of particular interest to the provision of services to Council, however, is the timeliness of the distribution of agenda papers as Ministerial involvement requires considerable more effort and resources. In addition, the Commission Office is aware of the Council of Australian Governments requirements that Ministerial Council agenda papers must be generally circulated at least three weeks prior to a meeting. In some cases, due to the relationship between a Commission meeting and the subsequent Council meeting, this requirement has been difficult to achieve.

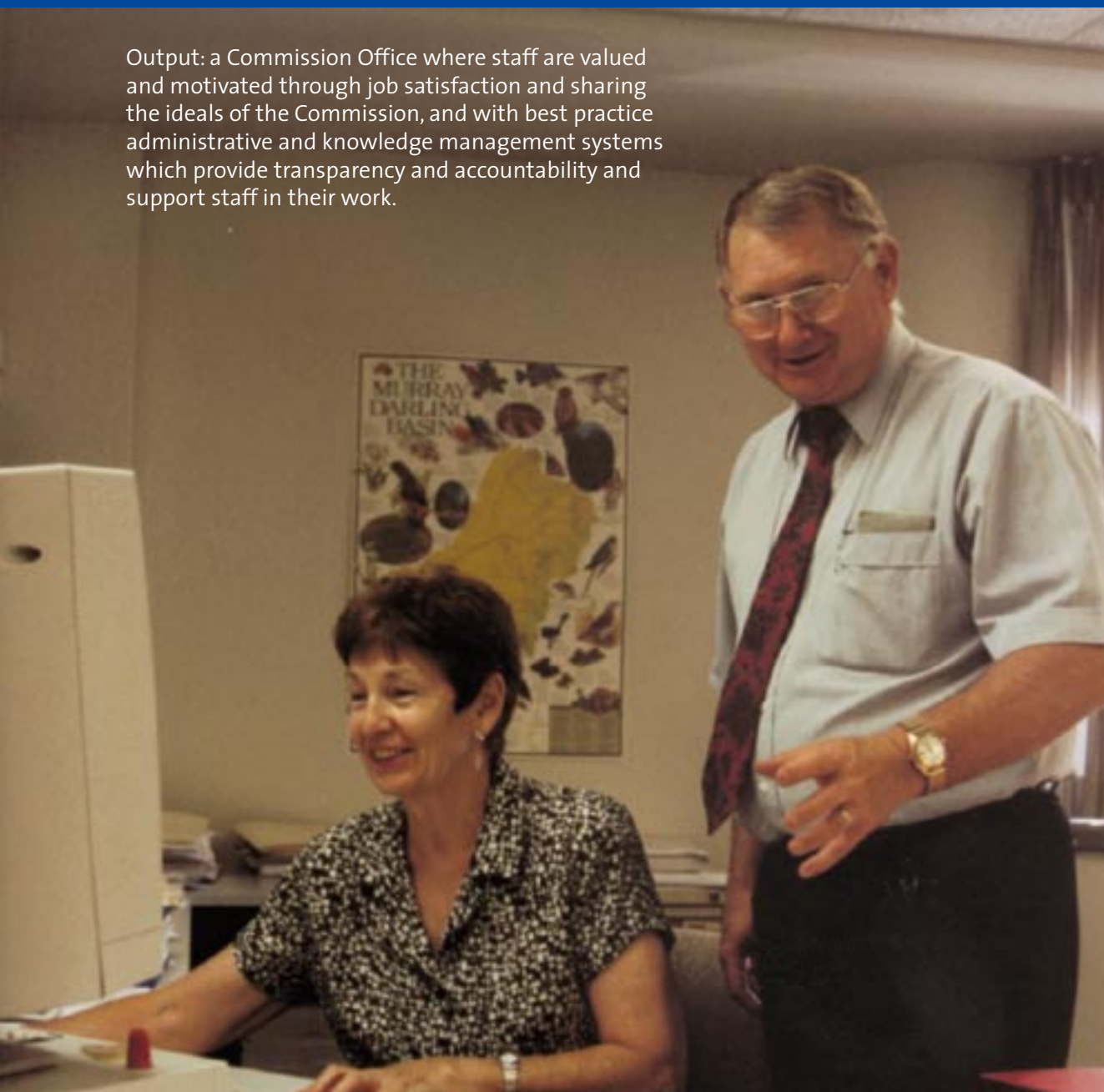
President

The Commission Office also provides support for the President. Qualitative feedback from the President on these services indicated that in general he was satisfied with the support services provided to him, but expressed concerns about the efficiency and effectiveness of meetings, including frequency of meetings. The large number of issues requiring consideration at each Commission meeting make it difficult to handle the subject matter adequately. The frequency of meetings and arrangements for follow-up from the meetings, including the opportunity for further Ministerial involvement in Basin activities could be considered further. The President was satisfied with the quality of information, its approach and method of distribution.

Chapter 6

Business Administration

Output: a Commission Office where staff are valued and motivated through job satisfaction and sharing the ideals of the Commission, and with best practice administrative and knowledge management systems which provide transparency and accountability and support staff in their work.



6.1 The 2000-01 budget

The Ministerial Council approved a budget of $63.6 million for 2000-01. The composition of this was:

	$ million
Water Business (River Murray Water)	42.3
Natural Resources Business	16.6
Partner Relations	0.6
Business Administration	4.1
Total	63.6

The contributions by Contracting Governments to this expenditure, together with other funding sources, are shown in table 10.

Table 10 Contributions of Contracting Governments and other funding sources

Government	$million
Commonwealth	11.0
New South Wales	18.9
Victoria	17.6
South Australia	13.4
Queensland	0.6
Australian Capital Territory	0.3
Total Contracting Governments	61.8
Other income	1.8
Total Commission Funding	**63.6**

6.2 Financial statements

The Australian National Audit Office continues as the Commission's auditor.

The financial statements have been prepared on an accruals basis. These statements, including the auditor's report and the statement on behalf of the Commission, are provided on pages 103 to 125.

6.3 The 2001-02 budget

In March 2001 the Ministerial Council approved a budget of $68.1 million for the Commission in 2001-02. This comprised:

	$ million
Water Business (River Murray Water)	43.6
Natural Resources Business	19.4
Partner Relations	0.6
Business Administration	4.5
Total	68.1

6.4 Staff of the Commission

Staff engaged by the Commission provide advice on policy, strategy and investment programs, and arrange and coordinate implementation of programs. The Commission also employs management and operational staff of River Murray Water.

Staff of the Office are employed in accordance with a Certified Agreement between the Commission and its employees. The Commission records its appreciation of the role of the Workplace Consultative Committee and the cooperation of all staff in implementing the existing workplace agreement during the year, including introduction of the Performance Management and Development Scheme and the upgrading of the Human Resources Manual, as well as constructive input to the new Agreement.

At 20 June 2001 the Commission employed a total of 68 staff on a variety of bases, including continuing, fixed term, casual and part time. Other officers are seconded from state and Commonwealth agencies.

Table 11 Staff Structure

	MALE	FEMALE	TOTAL
Senior Executive	6	1	7
All other Classifications	31	30	61
	37	31	68

The skills base of the Commission Office (table 12) reflects the strategic role of the Commission in the formulation, coordination and implementation of policies and in the application of sound management and business procedures.

Table 12 Academic Qualifications

Summary Qualifications	Total*	Science	Engineering	Business / Arts / Commerce
Doctorate	4	3	1	-
Masters	10	3	4	3
Bachelor	41	16	9	16
Other tertiary	17			17
Total	72	22	14	36

* Multiple qualifications have been included.

With Commission approval the Chief Executive, Don Blackmore, continued as a member of the World Commission on Dams.

6.5 Performance Reports

KPA 11. People Management

Sub-output: human resource management policies and procedures which are consistent with agreed values and behaviours

Performance Assessment

- Workplace agreement in place
- Human Resource policies are current and readily accessible
- Performance Management and Development System in place and linked with training program

Performance Report

Workplace Agreement

A significant factor in achieving human resource management policies and procedures which are consistent with agreed values and behaviours is having in place a workplace agreement between the Commission and its employees. During the year, negotiations were concluded between management and employee representatives to develop and implement a new agreement to replace the existing one when it expired in the second half of 2000. Ninety-three percent of employees voted in support of the new agreement. This agreement will operate until 30 September 2003.

Human Resource policies

The Commission's Human Resources Manual is available on its intranet, with additional links to more detailed procedural documents. The Manual is being progressively updated.

Performance Management and Development System

A Performance Management and Development System Implementation Kit was completed in June 2000, and staff provided with training on its use. By the end of June 2001 a large proportion of staff had completed the first full cycle of the system.

KPA 12. Business Systems and Financial Administration

Sub-output: systems and procedures which are effective and efficient

Performance Assessment

- Administrative and knowledge management systems in place which support decision-making and make information readily accessible
- Financial management systems in place which safeguard the interests of the Commission and provide accurate, relevant and timely information to support decision-making
- Information Technology (IT) infrastructure in place to support business and operating systems

Performance Report

Knowledge management, administrative and financial management systems

In October 2000 a Knowledge Management Plan was developed to drive future infrastructure upgrades within the Commission Office and assist with attaining compliance with the Government Online initiative. It was proposed to establish a knowledge management project encompassing knowledge sharing and collaboration; streamlining administrative procedures; project management and reporting; document management and archiving; and authentication and security. Following costing for the entire project, in January 2001 it was decided to proceed with specific elements necessary to underpin a knowledge management approach within the Commission. These included proceeding with reviews of the finance and records management systems, investigating the establishment of an Extranet, and further investigation into knowledge management.

Comprehensive reviews were undertaken of the records management system, and financial management and information systems (FMIS) and a review also undertaken of the Commission's accounting procedures. Following the systems reviews, decisions were taken to upgrade each of these systems. Upgraded software was acquired for the FMIS and development of upgraded reporting formats is proceeding. Additional development has been undertaken of the records management systems, including the design of a file classification system and documentation of records not formally registered in the system. A decision on new software will be made following finalisation of specifications which will occur on completion of the supplementary reviews.

Information Technology (IT) infrastructure

Rather than develop an IT Infrastructure Plan it was agreed that systems would progressively be developed to support knowledge management and that the requirements of these systems would be allowed to define the future IT infrastructure. As system requirements are defined, infrastructure choices will be assessed and once approved, implementation will commence in the 2001-02 financial year.

An external security assessment of the Commission's IT infrastructure was completed in May 2001 and this will also result in some infrastructure change.

Financial Statements

For the year ended 30 June 2001

Australian National Audit Office

INDEPENDENT AUDIT REPORT

To the President of the Murray-Darling Basin Ministerial Council

Scope

I have audited the financial statements of the Murray-Darling Basin Commission for the year ended 30 June 2001. The financial statements comprise:

- Statement by President and the Chief Executive Officer of the Commission;
- Statement of Financial Performance;
- Statement of Financial Position;
- Statement of Cash Flows;
- Schedule of Commitments;
- Schedule of Contingencies; and
- Notes to and forming part of the Financial Statements.

The President and the Chief Executive Officer of the Commission are responsible for the preparation and presentation of the financial statements and the information they contain. I have conducted an independent audit of the financial statements in order to express an opinion on them to you.

The audit has been conducted in accordance with Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards, to provide reasonable assurance as to whether the financial statements are free of material misstatement. Audit procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial statements, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial statements are presented fairly in accordance with Australian Accounting Standards, other mandatory professional reporting requirements and statutory requirements in Australia so as to present a view of the entity which is consistent with my understanding of its financial position, the results of its operations and its cash flows.

The audit opinion expressed in this report has been formed on the above basis.

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BARTON ACT
Phone (02) 6203 7300 Fax (02) 6203 7777

Audit Opinion

In accordance with sub-clause 84(4) of the *Murray-Darling Basin Agreement 1992*, I now report that the financial statements are in agreement with the accounts and records of the Murray-Darling Basin Commission and in my opinion,

(i) the financial statements are based on proper accounts and records;

(ii) the receipt, expenditure and investment of moneys, and the acquisition and disposal of assets by the Commission during the year have been in accordance with the *Murray-Darling Basin Agreement 1992*; and

(iii) the financial statements give a true and fair view, in accordance with applicable Accounting Standards and other mandatory professional reporting requirements of the financial position of the Murray-Darling Basin Commission as at 30 June 2001 and the results of its operations and its cash flows for the year then ended.

Australian National Audit Office

Darren Box
Executive Director

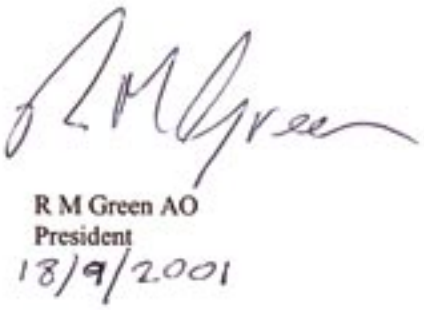
Delegate of the Auditor-General

Canberra

19 September 2001

Statement on Behalf of the Commission

In our opinion, the attached financial statements give a true and fair view of the financial position and transactions of the Murray-Darling Basin Commission for the year ended 30 June 2001.



R M Green AO
President
18/9/2001

D J Blackmore
Chief Executive
18/9/2001

STATEMENT OF FINANCIAL PERFORMANCE

For the year ended 30 June 2001

	Notes	2001 $'000	2000 $'000
Revenues from ordinary activities			
Revenue from governments	2A	60,048	48,722
Sale of goods and services	2B	1,372	857
Interest	2C	1,932	1,469
Proceeds from disposal of assets	2D	82	91
Total revenues from ordinary activities		**63,434**	**51,139**
Expenses from ordinary activities			
Employees	3A	4,948	4,038
Suppliers	3B	51,733	46,782
Depreciation and Amortisation	3C	322	299
Interest on finance lease	3D	36	22
Disposal of assets	2D	79	86
Total expenses from ordinary activities		**57,118**	**51,227**
Net surplus (deficit)		**6,316**	**(88)**

The accompanying notes and schedules form part of these financial statements

STATEMENT OF FINANCIAL POSITION
As at 30 June 2001

	Notes	2001 $'000	2000 $'000
ASSETS			
Financial assets			
Cash	4A	19,643	11,317
Receivables	4B	2,511	219
Investments	4C	15,000	16,000
Other	4D	888	888
Total financial assets		**38,042**	**28,424**
Non-financial assets			
Property, plant and equipment	5A	653	615
Inventories	5B	6	5
Fitout	5C	343	404
Other	5D	152	102
Total non-financial assets		**1,154**	**1,126**
Total assets		**39,196**	**29,550**
LIABILITIES			
Interest bearing liabilities			
Leases	6A	383	434
Total interest bearing liabilities		**383**	**434**
Provisions and Payables			
Employees	7A	1,042	1,054
Suppliers	7B	10,320	9,009
Total provisions and payables		**11,362**	**10,063**
Revenue in advance	7C	15,583	13,876
Total revenue in advance		**15,583**	**13,876**
Total liabilities		**27,328**	**24,373**
EQUITY			
Accumulated surplus		4,081	4,171
Contributions by Contracting Governments for purchase of assets		1,471	1,094
Operating surplus/(deficit)		6,316	(88)
Total equity	8	**11,868**	**5,177**
Total liabilities and equity		**39,196**	**29,550**
Current liabilities		26,475	23,510
Non-current liabilities		853	863
Current assets		38,200	28,531
Non-current assets		996	1,019

The accompanying notes and schedules form part of these financial statements

STATEMENT OF CASH FLOWS

For the year ended 30 June 2001

	Notes	2001 $'000	2000 $'000
OPERATING ACTIVITIES			
Cash received			
Contributions by governments		61,077	52,085
Sale of goods and services		521	714
Interest		1,908	1,490
GST recovered from ATO		3,543	-
Total cash received		**67,049**	**54,289**
Cash used			
Employees		(4,960)	(3,789)
Suppliers		(54,758)	(46,488)
Interest on finance lease		(36)	(23)
Total cash used		**(59,754)**	**(50,300)**
Net cash from operating activities	19	**7,295**	**3,989**
INVESTING ACTIVITIES			
Cash received			
Proceeds from sale of property, plant and equipment		82	91
Contributions by Contracting Governments for purchase of assets		377	382
Investments		1,000	-
Total cash received		**1,459**	**473**
Cash used			
Purchase of property, plant and equipment		(378)	(821)
Investments		-	(5,500)
Total cash used		**(378)**	**(6,321)**
Net cash from investing activities		**1,081**	**(5,848)**
FINANCING ACTIVITIES			
Cash received			
Proceeds from finance lease		-	439
Total cash received		**-**	**439**
Cash used			
Repayments of lease debt		(50)	(6)
Total cash used		**(50)**	**(6)**
Net cash from financing activities		**(50)**	**433**
Net increase in cash held		8,326	(1,426)
Cash at 1 July 2000		11,317	12,743
Cash at 30 June 2001		**19,643**	**11,317**

The accompanying notes and schedules form part of these financial statements

SCHEDULE OF COMMITMENTS

As at 30 June 2001

	2001 $'000	2000 $'000
BY TYPE		
CAPITAL COMMITMENTS		
Total capital commitments	-	-
OTHER COMMITMENTS		
Operating leases	2,985	2,982
Total commitments payable	**2,985**	**2,982**
BY MATURITY		
All net commitments		
One year or less	499	466
From one to five years	2,105	1,783
Over five years	381	733
Net commitments	**2,985**	**2,982**
Operating lease commitments		
One year or less	499	466
From one to five years	2,105	1,783
Over five years	381	733
Total operating lease commitments	**2,985**	**2,982**

NB: Commitments are GST inclusive where relevant and comparatives have not been adjusted to reflect GST.

* The Commission has entered into an agreement to lease office accommodation at, 15 Moore Street, Canberra City, that expires on 28 February 2007. At balance date operating leases existed for photocopier and plotter equipment and for one vehicle.

The accompanying notes and schedules form part of these financial statements

SCHEDULE OF CONTINGENCIES

As at 30 June 2001

	Notes	2001 $'000	2000 $'000
CONTINGENT LOSSES		-	-
CONTINGENT GAINS		-	-
Net contingencies		-	-

SCHEDULE OF UNQUANTIFIABLE CONTINGENCIES

As at 30 June 2001, the Commission was joined as a party to a matter before the courts related to land rights. It is not possible to estimate the amounts of any payments that may eventually be required in relation to this case.

The accompanying notes and schedules form part of these financial statements

1 Summary of significant accounting policies

1.1 Basis of accounting

The financial statements are a general purpose financial report on the financial position and transactions of the Commission. As indicated in Note 1.6, these statements do not incorporate assets and related depreciation for infrastructure considered to be held in trust by State Constructing Authorities on behalf of the Commission.

The financial statements have been prepared in accordance with Australian Accounting Standards and Accounting Guidance Releases issued by the Australian Accounting Research Foundation, Consensus Views of the Urgent Issues Group and having regard to Statements of Accounting Concepts. Financial statements have been prepared on an accrual basis in accordance with historical cost conventions. No allowance is made for the effect of changing prices on the results or financial position.

1.2 Changes in accounting policy

The accounting policies used in the preparation of these financial statements are consistent with those used in 1999-2000.

1.3 Taxation

Throughout the year under review, the Commission was exempt from all forms of taxation except fringe benefits tax and goods and services tax. Where applicable, appropriate provisions for goods and services tax have been included.

1.4 Inventories held for sale

Inventories comprise publications and videos held for sale or free distribution as part of the Commission's communications program. Inventories are stated at the lower of cost and net realisable value.

1.5 Property plant and equipment held by the Commission

All property plant and equipment with a cost equal to or in excess of $600 is capitalised in the year of acquisition and is reported at cost value. All depreciable non-current assets are written off to their estimated realisable value over their estimated useful lives using the straight line method of depreciation. Approximately 60% of the value of these items is in computer equipment and motor vehicles which are generally disposed of within three years. The following useful lives and depreciation rates have been assumed for each category of asset.

Motor Vehicles	6.67 years	(15% p.a.)
Computers and IT equipment	3.00 years	(33.3% p.a.)
Office Equipment	5.88 years	(17% p,a.)
Furniture, fixtures and fittings	7.69 years	(13% p.a.)

Leasehold improvements are amortised over the estimated life of the improvements or the unexpired portion of the lease whichever is the lesser.

Under the provisions of the Murray-Darling Basin Agreement, Contracting Governments are required to contribute to the operating and capital expenditure of the Commission on an annual basis. Contributions by Contracting Governments for the purchase of assets are treated as a contribution of equity.

Recoverable amount test

The carrying amount of each item of property plant and equipment has been reviewed to determine whether it is in excess of the asset's recoverable amount. No write down to recoverable amounts has been made in 2000-2001.

1.6 Assets held by Constructing Authorities but acquired with Commission funds

Infrastructure assets used for the storage and distribution of bulk water and for related activities have been constructed with funds provided by the Commission. These assets are located in the states and operated by employees of state government agencies.

Although such assets are considered to be held in trust by State Constructing Authorities on behalf of the Commission, they have not been incorporated into these financial statements, nor has depreciation of these assets been taken into account in determining the operating surplus / deficit for the year. This position will be reviewed as progress is made in the establishment of the water business unit (River Murray Water) within the Commission and the introduction of a user-pays pricing regime for services provided by River Murray Water.

A valuation of these assets was undertaken during 1999-2000. This valued these assets at $1.6 billion, on a current replacement cost basis.

The Murray-Darling Basin Agreement requires each Contracting Government to account to the Commission for all moneys received from the Commission under the Agreement. The Commission must cause a list to be kept of both the assets it acquires and the assets Constructing Authorities acquire with funds made available by the Commission. To meet these requirements, assets acquired by the Commission are included in the Commission's asset registers and accounts (see Note 1.5) and each of the State Constructing Authorities is required by the Commission to prepare an asset register which is to be made available to the Commission on request during the year. The Commission has developed a consolidated register of all assets acquired with funds provided by the Commission.

1.7 Employee entitlements

All vesting employee entitlements (including salaries, employer superannuation contributions, recreation leave, and long service leave) are recognised as liabilities. Liabilities for recreation leave, employer superannuation contributions, and salaries are measured at current remuneration rates at 30 June 2001 (nominal value). The provision for long service leave at 30 June 2001 is measured as the present value of estimated cash outflows attaching to the nominal value at 30 June 2001. Estimated cash outflows are calculated by adjusting the nominal value for each employee for potential remuneration increases and applying a probability factor related to years of service to estimate expected payout and year of payment. The present value of each payout is calculated by applying discount factors derived from current yields of long term government debt manning in the expected year of payment.

The classification of recreation and long service leave liabilities into current and non-current is based on the past history of payments. No provision has been made for sick or personal circumstances and support leave as all such leave is non-vesting and the average leave taken by employees for these purposes is less than the annual entitlement for these forms of leave.

1.8 Leases

A distinction is made between finance leases which effectively transfer from the lessor to the lessee substantially all the risks and benefits incidental to ownership of leased assets and operating leases under which the lessor effectively retains all such risks and benefits. Operating lease payments are expended on a basis which is representative of the pattern of benefits derived from the leased assets.

Where a non-current asset is acquired by means of a finance lease, the asset is capitalised at the present value of minimum lease payments at the inception of the lease and a liability recognised for the same amount. Leased assets are amortised over the period of the lease. Lease payments are allocated between the principal component and the interest expense.

1.9 Lease incentives

Lease incentives are recognised as liabilities on receipt of the incentive. The amount of liability is reduced by allocating lease payments between rental expense and reduction of liability.

1.10 Revenue received in advance

In accordance with accrual accounting principles expenditures during the year are matched with revenues provided by governments and others to fund them. Amounts received in advance to fund projects in future years and unspent funds provided for the current year that have been authorised to be carried-over to the following year in accordance with clause 75 of the Murray Darling Basin Agreement are treated as revenue received in advance.

1.11 Cash

For the purpose of the statement of cash flows, cash includes cash on hand and on call at the bank.

1.12 Rounding

Amounts, including totals and sub-totals are rounded to the nearest $1,000 except in relation to:
- remuneration of officers
- remuneration of commissioners
- remuneration of auditors

Rounding may give rise to apparent minor discrepancies in additions.

1.13 Resources received free of charge

The Commission receives no resources free of charge.

1.14 Comparative Figures

Comparative figures have been adjusted to conform to changes in presentation in these financial statements where required.

2 Operating revenues

2A Revenues from government

	2001 $'000	2000 $'000
Contributions by contracting governments:		
Commonwealth	11,027	9,101
New South Wales	18,800	16,352
Victoria	17,409	15,161
South Australia	13,239	11,588
Queensland	732	511
Australian Capital Territory	246	253
Add revenue in advance in 1999-2000	13,782	10,218
Less contributions paid for 2001-2002 in advance	(142)	-
Less revenue carried forward to 2001-2002	(14,668)	(13,782)
Less equity contribution for purchase of assets	(377)	(382)
Less contributions to be refunded to contracting governments	-	(298)
	60,048	**48,722**

		2001 $'000	2000 $'000
2B	**Sale of goods and services**		
	Hydro generation and land and cottage rents	1,359	850
	Sale of publications and videos	1	7
	Other	12	-
		1,372	**857**
2C	**Interest**		
	Interest from bank and investments	1,932	1,469
		1,932	**1,469**
2D	**Proceeds from disposal of assets**		
	Revenue (Proceeds) from sale	82	91
	Expenses from sale	(79)	(86)
		3	**5**

3 Operating expenses

3A	**Employee expenses**		
	Salaries	4,557	3,910
	Increase in provision for annual leave	293	6
	Increase in provision for long service leave	26	60
	Separation and redundancy	72	62
		4,948	**4,038**
3B	**Supplier expenses**		
	Expenditure by State Constructing Authorities	34,531	34,272
	Project expenditure	15,136	9,727
	Supply of goods and services	2,066	2,783
		51,733	**46,782**

		2001 $'000	2000 $'000
3C	**Depreciation**		
	Depreciation of motor vehicles	26	23
	Depreciation of office equipment	63	48
	Depreciation of computers	157	171
	Depreciation of furniture, fixtures and fittings	15	22
	Amortisation of fitout costs	61	35
		322	**299**
3D	**Interest**		
	Interest on finance lease	36	22
		36	**22**

4 Financial assets

4A	**Cash**		
	Cash on call at bank	19,640	11,314
	Cash on hand	3	3
		19,643	**11,317**
4B	**Receivables**		
	Interest	159	134
	Other debtors	937	85
	Refundable GST	1,415	-
		2,511	**219**
4C	**Investments**		
	Term deposits	15,000	16,000
		15,000	**16,000**
4D	**Other financial assets**		
	Advances to Constructing Authorities	888	888
		888	**888**

5 Non-financial assets ($'000)

		Balance 1 Jul 00	Retire-ments	Acqui-sitions	Balance 30 June 01	Balance 30 June 00
5A	**Property, plant and equipment**					
	Motor vehicles (cost)	178	101	88	165	178
	Accumulated depreciation	(27)			(30)	(27)
		151			**135**	**151**
	Office equipment (cost)	438	4	16	450	438
	Accumulated depreciation	(172)			(231)	(172)
		266			**219**	**266**
	Furniture, fixtures and fittings (cost)	153	1	17	169	153
	Accumulated depreciation	(112)			(127)	(112)
		41			**42**	**41**
	Computers and IT equipment (cost)	942	170	256	1,028	942
	Accumulated depreciation	(785)			(771)	(785)
		157			**257**	**157**
	Net property plant and equipment	615			653	615
	Total retirements / acquisitions		**276**	**377**		

		2001 $'000	2000 $'000
5B	**Inventories**		
	Inventory of publications & videos held for sale and distribution	6	5
		6	**5**
5C	**Fitout cost**		
	Fitout	439	439
	Accumulated amortisation	(96)	(35)
		343	**404**
5D	**Other**		
	Prepaid contracts	152	102
		152	**102**

		2001 $'000	2000 $'000

6 Interest bearing liabilities

6A	**Leases**		
	Finance Lease Commitments		
	Not later than one year	86	86
	Later than one year and not later than five	344	344
	Later than five	57	144
	Minimum lease payments	487	574
	Deduct – future finance charges	104	140
	Lease liability	**383**	**434**
	Lease liability is represented by:		
	Current	55	50
	Non-current	328	384
		383	**434**

7 Provisions and payables

7A	**Liabilities for employee entitlements**		
	Salaries and wages	145	254
	Annual leave	372	320
	Long service leave	525	480
		1,042	**1,054**
	Current	517	574
	Non-current	525	480
	Total liabilities for employee entitlements	**1,042**	**1,054**
7B	**Suppliers**		
	Project expenditure payable	1,594	747
	Constructing Authority claims payable	8,396	7,604
	Other creditors	330	658
	Total suppliers	**10,320**	**9,009**

		2001 $'000	2000 $'000
7C	**Revenue received in advance**		
	Queensland 2001-2002 contributions received in advance	142	-
	Carry-over of 2000-2001 contributions to 2001-2002	14,668	13,782
	Unamortised balance of lease incentive	80	94
	Externally funded projects	693	-
	Total revenue received in advance	**15,583**	**13,876**

8. Equity

Item	Accumulated Results $'000	Contribution to Assets $'000	Total $'000
Balance 1 July 2000	4,081	1,094	5,175
Operating Results	6,316	-	6,316
Equity Contributions	-	377	377
Balance at 30 June 2001	**10,397**	**1,471**	**11,868**

9. Unrecognised Liabilities

The Commission is not aware of any significant unrecognised liabilities at 30 June 2001 other than those recorded in the schedule of commitments.

10. Liabilities assumed by governments

Except as indicated by these statements no liabilities have been assumed by governments

11. Remuneration of Officers

	2001 $	2000 $
Income received or due and receivable by Officers	834,765	841,200

The number of officers included in these figures are shown below in the relevant income bands

	2001 Number	2000 Number
$100,000 - $109,999	1	-
$110,000 - $119,999	1	1
$120,000 - $129,999	1	2
$140,000 - $149,999	2	-
$150,000 - $159,999	-	2
$180,000 - $189,999	-	-
$190,000 - $199,999	1	1

"Remuneration" refers to salary, employer superannuation, estimated cost of motor vehicles provided as part of a remuneration package, spouse travel entitlements and related fringe benefits tax paid during 2000-2001 for officers concerned with the management of the Office of the Commission where the total paid in respect of an individual exceeded $100,000.

12. Remuneration of Members of the Commission

Remuneration is paid to one executive member. No remuneration is paid to non-executive members who are State or Commonwealth public servants or officers of State agencies. The remuneration paid to the executive member is less than $100,000.

13. Auditors' Remuneration

	2001 $	2000 $
Remuneration to be paid to Australian National Audit Office for auditing financial statements for the reporting period. No other services were provided by the ANAO.	24,930	23,000
Remuneration paid for internal auditing services during the reporting period.	13,250	-

14. Related Party Disclosures

Members of the Commission

Members of the Commission during 2000-2001 were:

Dr. R.M. Green AO	(President)	Dr. K. Sheridan AO	
Dr. C. Adrian	(to 7 May 2001)	Dr. R. Smith	
Mr. D. Flett		Mr. S. Spencer	
Mr. S. Hunter		Mr. S. Sullivan	(to 2 November 2000)
Dr. I. McPhail	(to 2 August 2000)	Mr. P. Sutherland	(to 22 August 2000)
Ms. C. Munro	(from 22 August 2000)	Mr. R. Thomas	(from 2 November 2000)
Mr. D. Mutton		Mr. B. Wonder	

Loans to Members and Officers

No loans were made to members or officers of the Commission.

Transactions with Related Entities

The Murray-Darling Basin Commission is the executive arm of the Ministerial Council established by the 1992 Murray-Darling Basin Agreement. As a partnership between the States and Commonwealth funds for activities under the direction of the Commission are paid to the Commission and disbursed according to Commission priorities. The bulk of Commission funded activity is undertaken by State agencies as constructing authorities. All transactions are at arm's length and in accordance with budgets and programs approved by the Ministerial Council.

15. Economic Dependency

The Commission is dependent on contributions by Contracting Governments to carry out its normal activities.

16. Location of Business

With the exception of assistance provided to the Mekong River Commission under AusAID funding the Commission operates solely in Australia.

17. Subsequent Events

The Commission is aware of no events subsequent to 30 June 2001 that may affect these financial statements.

18. Grants

The Commission is responsible for administering a number of grant programs on behalf of Commonwealth and state governments. Funding for these programs and responsibility for the programs rests with the various individual government bodies, consequently no disclosures have been made in relation to grant programs.

Grants received during the year were for the Mekong Delta, Fish Rehabilitation and LIDAR (mapping the southern area of the Murray-Darling Basin) projects. Details of revenue and expenditure in relation to grant programs are as follows:

	2001 $'000	2000 $'000
Grants Program		
Cash available, 1 July 2000	199	623
Contributions by Government agencies	866	453
Total receipts	**1,065**	**1,076**
Payments	372	877
Cash available, 30 June 2001	**693**	**199**

19. Cash Flow Reconciliation

	2001 $'000	2000 $'000
Reconciliation of Operating Surplus to Net Cash from Operating Activities		
Operating surplus/ (deficit)	**6,316**	**(88)**
Depreciation and amortisation	322	299
(Profit) / Loss on sale of assets	(3)	(5)
Changes in assets and liabilities		
(Increase)/decrease in receivables	(2,292)	(121)
(Increase)/decrease in other assets	(53)	393
(Increase)/decrease in inventories	(1)	(3)
Increase/(decrease) in revenue in advance	1,707	3,457
Increase/(decrease) in liability to suppliers	1,311	(192)
Increase/(decrease) in employee provisions	(12)	249
Net Cash from Operating Activities	**7,295**	**3,989**

20. Financial Instruments

a) Terms, conditions and accounting policies

Financial Instrument	Note	Accounting policies and methods	Nature of underlying Instrument
Financial assets		Financial assets are recognised when control over future economic benefits is established and the amount of the benefit can be reliably measured.	
Cash on call	4A	Cash is recognised at its nominal amount. Interest is credited to revenue as it accrues.	
Receivables for goods & services	4B	The majority of the Commission's receipts are from Commonwealth and State governments and major trading banks and the risk of non-payment is considered minimal.	
Investments	4C	Investments are limited to term deposits of a duration not exceeding 90 days and are recorded at cost. Interest is accrued as it is earned.	Term deposits are with the major trading banks and earn interest rate in line with market conditions.
Advances to Constructing Authorities	4D	Under the provisions of S72(2) of the Agreement the Commission has advanced working capital to each of the Constructing Authorities.	Advances are in the form of cash and are repayable on request.
Financial liabilities		Financial liabilities are recognised when a present obligation to another party is entered into and the amount of the liability can be reliably measured.	
Financial lease liability	6A	Liabilities are recognised at the present value of the minimum lease payments at the beginning of the lease. The discount rates used are estimates of the interest rates implicit in the lease.	At reporting date, the Commission had a finance lease with a term of 7 years. The interest rate implicit in the lease is 8.75%. The lease liability is secured by the leased asset.
Suppliers	7B	Creditors and accruals are recognised at their nominal amounts, being the amount at which the liabilities will be settled. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).	Settlement is usually made net 30 days.

b) Interest Rate Risk

The Commission's exposure to interest rate risk and the effective weighted average interest rate for classes of financial assets and financial liabilities is set out below:

Financial Instrument	Note	Floating Interest Rate		Fixed Interest Rate						Non-Interest Bearing		Total	
				1 year or less		2 to 5 years		> 5 years					
		2001 $'000	2000 $'000	2001 $'000	2000 $'000	2001 $'000	2000 $'000	2001 $'000	2000 $'000	2001 $'000	2000 $'000	2001 $'000	2000 $'000
Financial Assets													
Cash at bank	4A	19,640	11,314	-	-	-	-	-	-	-	-	19,640	11,314
Cash on hand	4A	-	-	-	-	-	-	-	-	3	3	3	3
Receivables	4B	-	-	-	-	-	-	-	-	2,511	219	2,511	219
Investments	4C	-	-	15,000	16,000	-	-	-	-	-	-	15,000	16,000
Weighted average interest rate		4.77%	5.75%	5.93%	5.6%	-	-	-	-	-	-	-	-
									-	-	-	-	-
Financial Liabilities													
Finance lease	6A	-	-	86	86	344	344	57	144	-	-	487	574
Accounts payable	7B	-	-	-	-	-	-	-	-	10,320	9,009	10,320	9,009

c) Credit Risk Exposure

Credit risk represents the loss that would be recognised if counterparties failed to perform as contracted. The credit risk on financial assets of the Commission which have been recognised on the statement of financial position, is the carrying amount net of any provision for doubtful debts. Due to the nature of the majority of the Commission's clients such risk is considered by the Commission to be low.

d) Net Fair Values of Financial Assets and Liabilities

The net fair values of investments have been computed at net realisable value at balance date. For other assets and liabilities, the net fair value approximates their carrying value. No financial assets or financial liabilities are readily traded on organised markets in standardised form other than investments. The aggregate net fair values and carrying amounts of financial assets and financial liabilities are disclosed in the statement of financial position and in the notes to and forming part of the financial statements.

		2001 $'000		2000 $'000	
	Note	Total carrying amount	Average net fair value	Total carrying amount	Average net fair value
Financial assets					
Cash at bank	4A	19,640	19,640	11,314	11,314
Cash on hand	4A	3	3	3	3
Investments	4C	15,000	15,000	16,000	16,000
Receivables for goods and services	4B	2,511	2,511	219	219
Advances to constructing authorities	4D	888	888	888	888
Total financial assets		38,042	38,042	28,424	28,424
Financial liabilities					
Finance lease	6A	383	383	434	434
Accounts Payable	7B	10,320	10,320	9,009	9,009
Revenue received in advance	7C	835	835	-	-
Total financial liabilities		11,538	11,538	9,443	9,443

Appendices

To meet its responsibilities the Murray-Darling Basin Commission brings together representatives from many agencies and communities in its six jurisdictions.

An indication of the range of representation is provided in the following appendices.

APPENDIX A. MEMBERSHIP OF THE MINISTERIAL COUNCIL

Members from 1 July 2000 to 30 June 2001

Commonwealth

The Hon. Warren Truss, MP	Minister for Agriculture, Fisheries and Forestry (Chairman)
Senator the Hon. Robert Hill	Minister for the Environment and Heritage
The Hon. Wilson Tuckey, MP	Minister for Forestry and Conservation

New South Wales

The Hon. Richard Amery, MP	Minister for Agriculture and Minister for Land and Water Conservation
The Hon. Bob Debus, MP	Attorney–General, Minister for the Environment, Minister for Emergency Services, Minister for Corrective Services and Minister assisting the Premier on the Arts.

Victoria

The Hon. Sherryl Garbutt, MLA	Minister for Environment and Conservation
The Hon. Keith Hamilton, MLA	Minister for Agriculture and Minister for Aboriginal Affairs

South Australia

The Hon. Mark Brindal, MP	Minister for Water Resources, Minister for Employment and Training, Minister for Youth
The Hon. Rob Kerin, MP	Minister for Primary Industries and Resources, Minister for Regional Development
The Hon. Iain Evans, MP	Minister for Environment and Heritage, Minister for Recreation, Sport and Racing

Queensland

The Hon. Stephen Robertson, MP	Minister for Natural Resources and Mines (from 20 March 2001)
The Hon. Dean Wells, MP	Minister for Environment (from 20 March 2001)
The Hon. Rod Welford, MP	Minister for Environment and Heritage, Minister for Natural Resources (to 20 March 2001)

Australian Capital Territory

Mr Brendan Smyth, MLA	Minister for Urban Services (ACT Participation is via a Memorandum of Understanding, 27 March 1998)

APPENDIX B. MEMBERSHIP OF THE COMMUNITY ADVISORY COMMITTEE

Members from 1 July 2000 to 30 June 2001

Chairman
Mrs Leith Boully

Regional Representatives

Member	Outgoing Member	Catchment
New South Wales		
Mr Ian Rogan (elect)	Mrs Michele Simpson	Central West
Mr Clive Johnson (elect)	Mr Bob McFarland	Lachlan
Mr Angus Whyte (elect)	Mr Jim Wilton	Lower Murray-Darling
Mr Daryl McGregor (elect)	Mr Adrian Wells	Murray
Mr Peter Milliken (elect)	Mr Tom Stacy	Murrumbidgee
Les Boland (elect)	Mr Alan Sinclair	North West
Mr Jim McDonald (elect)		Namoi
Ms Karen Hindmarsh (elect)		Gwydir
Mrs Jenny McLellan		Western
Victoria		
Mr Athol McDonald (elect)	Mr Jeremy Gaylard	Goulburn
Mr Rodney Hayden		Mallee
Mr Drew English		North Central
Ms Sarah Nicholas (elect)	Mrs Noelene Wallace	North East
Mr Lance Netherway		Wimmera
South Australia		
Mr Leon Broster		Adelaide
Mr John Berger		Lower Mallee
Mrs Joanne Pfeiffer		Lower Murray
Dr Peter Haslett		Riverland
Queensland		
Mr Clarrie Hillard		Border Rivers
Mrs Bobbie Brazil		Condamine
Mr Lloyd Harth		Maranoa/Balonne
Ms Anne Bredhauer		Warrego/Paroo

Member	Outgoing Member	Catchment
Australian Capital Territory		
Professor Peter Cullen		ACT Environment Advisory Committee

Peak Organisation Representatives

Member	Organisation
Mr Tim Fisher	Australian Conservation Foundation
Mr Bruce Lloyd	Australian Landcare Council
Mr Ian Mann	Australian Local Government Association
Mr Les Gordon	National Farmers' Federation
Mr Derek Walker	Indigenous Representative

APPENDIX C. MEMBERSHIP OF THE COMMISSION

Members from 1 July 2000 to 30 June 2001

Dr Roy Green AO	Independent President

COMMISSIONERS

Commonwealth

Mr Bernard Wonder	Executive Director, Competitiveness and Sustainability Group Department of Agriculture, Fisheries and Forestry
Mr Stephen Hunter	Head, Biodiversity Group, Environment Australia

New South Wales

Dr Bob Smith	Director-General, Department of Land and Water Conservation
Dr Kevin Sheridan	Director-General, New South Wales Department of Agriculture

Victoria

Ms Chloe Munro	Secretary, Department of Natural Resources and Environment (from 22 August 2000)
Mr Peter Sutherland	Executive Director, Catchment and Water Division, Department of Natural Resources and Environment (to 22 August 2000)
Mr Denis Flett	Chief Executive Officer, Goulburn-Murray Water

South Australia

Mr Dennis Mutton	Chief Executive, Department of Primary Industries and Resources
Mr Robert Thomas	Chief Executive, Department for Water Resources (from 2 November 2000)
Mr Sean Sullivan	Chief Executive, South Australian Water Corporation (to 2 November 2000)

Queensland

Mr Scott Spencer	Executive Director, Resource Management, Department of Natural Resources

Australian Capital Territory

Dr Colin Adrian	Executive Director Environment ACT, Department of Urban Services (to 7 May 2001) (ACT Participation is via a Memorandum of Understanding, 27 March 1998)

DEPUTY COMMISSIONERS

Commonwealth

Mr Ian Thompson	First Assistant Secretary, Natural Resource Management Business Unit, Department of Agriculture, Fisheries and Forestry
Dr Conall O'Connell	First Assistant Secretary, Marine & Water Division, Environment Australia

New South Wales

Mr David Harriss	Regional Director, Department of Land and Water Conservation
Dr David Leece	Director, Environment Protection Authority

Victoria

Mr Peter Sutherland	Executive Director, Catchment and Water Division, Department of Natural Resources and Environment
Mr Campbell Fitzpatrick	Director, Catchment and Water Resources, Department of Natural Resources and Environment

South Australia

Mr Peter Hoey	Director, Water Resources, Department for Water Resources
Mr Robert Thomas	Chief Executive, Department for Water Resources (to 2 November 2000)

Queensland

Mr Scott Spencer	Executive Director Resource Management, Department of Natural Resources
Mr Greg Claydon	Regional Service Director, South West Region, Department of Natural Resources

Australian Capital Territory

Ms Elizabeth Fowler	Director, Environment Protection, Environment ACT, Department of Urban Services (ACT Participation is via a Memorandum of Understanding, 27 March 1998)

APPENDIX D. MEMBERSHIP OF PROJECT BOARDS

	Projects	Boards*			Commission Office
A	**Issues-Based Boards**	**Chair**	**Members**		
1	Lake Victoria Cultural Heritage	Harriss (DepComm)	Flett (Comm), Harvey (DWR), O'Connell (Dep Comm)		Blackmore
B	**Long-term Strategy Development Boards**	**Executive**	**Senior User**	**Senior Supplier**	**MDBC Senior Officer**
2	Interstate Water Trading	Flett (Comm)	Thomas (Comm), Thompson (Dep Comm)	Harriss (Dep Comm)	Keyworth
3	Native Fish Management	Thompson (DepComm)	Gentle (Comm-elect)		Goss
4	Environmental Flow and Water Quality Objectives for the River Murray	Hoey (DepComm) Fitzpatrick (Dep Comm)	Leece (Dep Comm)	Hunter (Comm), Boully (CAC)	Blackmore
5	Basin Salinity Management Strategy	Smith (Comm)	Sutherland (DepComm)	Hoey (Dep Comm)	Goss
6	Floodplain Management	Hunter (Comm)	Harriss (Dep Comm)	Fitzpatrick (Dep Comm)	Keyworth
7	Sustainable Rivers Audit	Keyworth (MDBC), Chesson and Bunny (Commonwealth), Orr/Knights (NSW), Doolan (VIC), Hill (SA), Vanderbyl and Loos (QLD), Fowler and Donnelly (ACT) and Fisher (CAC)			
C	**Completed Project Boards**	**Executive**	**Senior User**	**Senior Supplier**	**MDBC Senior Officer**
8	Mitta Mitta Valley Ex-gratia Payments	Dole (RMW)	Flett (Comm), Harriss (Dep Comm), Hoey (Dep Comm), Rhodes (AFFA)		Dole
9	Human Dimension Strategy	Mutton (Comm)	Spencer (Dep Comm)	Boully & English (CAC)	Purdie
10	Review of the Operation of the Cap	Wonder (Comm)	Leece (Dep Comm) Fenwick (Comm)	Fitzpatrick (Dep Comm) Spencer (Comm)	Blackmore

* Comm = Commissioner; Dep Comm = Deputy Commissioner; CAC = Community Advisory Committee

APPENDIX E. INFORMATION AVAILABLE FROM THE COMMISSION

A full list of MDBC publications can be viewed on the Commission web site at:
http://www.mdbc.gov.au/education/publications/order.htm.
The following publications were produced during the 2000-2001 financial year.

Draft Basin Salinity Management Strategy 2001-2015, September 2000, Murray-Darling Basin Ministerial Council.

Draft Integrated Catchment Management in the Murray-Darling Basin 2001-2010: Delivering a sustainable future, September 2000, Murray-Darling Basin Ministerial Council.

Guidelines for the preparation of Community/State 1999-2000 Annual Reports for the Basin Sustainability Program, August 2000, Murray-Darling Basin Commission.

Guidelines for the preparation of Community/State Three-Year Rolling Plans for the Basin Sustainability Program, August 2000, Murray-Darling Basin Commission.

Integrated Catchment Management in the Murray-Darling Basin 2001-2010: Delivering a sustainable future, June 2001, Murray-Darling Basin Ministerial Council.

Murray-Darling Basin Commission Corporate Plan 2000/01-2002/03, 2001, Murray-Darling Basin Commission.

Review of the Operation of the Cap: Overview Report of the Murray-Darling Basin Commission, August 2000, Murray-Darling Basin Ministerial Council.

Review of the Operation of the Cap: Overview Report of the Murray-Darling Basin Commission Including the four Companion Papers, August 2000, Murray-Darling Basin Ministerial Council.

Rivers as Ecological Systems: The Murray-Darling Basin, 2001, Murray-Darling Basin Commission.

Rivers Forever: Writing and art by children of the Murray-Darling Basin, 2000, Murray-Darling Basin Commission and the Primary English Teachers Association

Seeking Knowledge Gaps for Sustainable Communities, Landscapes and Rivers. Murray-Darling Basin Commission Forum, 2001, Murray-Darling Basin Commission.

Strategic Investigations and Education Forum Proceedings 1999, 2000, Murray-Darling Basin Commission.

The Murray-Darling Basin Initiative, 2001, Murray-Darling Basin Commission.

Water Audit Monitoring Report 1998/99: Report of the Murray-Darling Basin Commission on the Cap on Diversions, August 2000, Murray-Darling Basin Commission.

APPENDIX F. COMMITTEES AND WORKING GROUPS 2000-01

Asset Management Advisory Panel
Ad-Hoc Technical Working Group on Salt Interception
Advisory Group on Hume to Yarrawonga Waterway Management
Basin Salinity Technical Panel
Basin Salinity Strategy TaskForce
Basin Sustainability Plan Working Group
Communication and Human Dimension Issues Working Group
Community Reference Panel for Environmental Flows & Water Quality Projects
Dryland Issues Working Group
Finance Committee
Fish Passage Reference Group
Fish Working Group
Floodplain Working Group
Groundwater Technical Reference Group
High Level Working Group on Salt Interception
Human Dimension Group
Hume-Dartmouth Technical Review Committee
Integrated Catchment Management TaskForce
Integrated Catchment Management Policy Committee
Irrigated Infrastructure GIS Working Group
Irrigation Issues Working Group
River Murray Water Advisory Board
Riverine Issues Working Group
Salinity and Drainage Strategy Assessment Working Group
Snowy Management Committee
Snowy Technical Working Group
Sustainable Rivers Audit Taskforce
Water Audit Working Group
Water Liaison Committee
Water Market Reform Working Group
Water Policy Committee
Water Quality and River Health Working Group

Glossary

2000-2001	The financial year 2000-2001, namely 1 July 2000 to 30 June 2001. See also water year.
Agreement	See *Murray-Darling Basin Agreement*.
anabranch	A branch of a river that leaves the main stream and rejoins it further downstream.
Basin	When shown with an initial capital, refers to the Murray-Darling Basin.
Basin States	The four states in which the Murray-Darling Basin is located – namely New South Wales, Victoria, South Australia and Queensland. The Australian Capital Territory is also in the Basin.
blue-green algae	See *cyanobacteria*.
Basin Sustainability Plan	The framework for planning, evaluating and reporting on natural resources management in the Basin, described in section 4.2.
CAC	Community Advisory Committee.
Commission, the	The Murray-Darling Basin Commission, see section 1.3.
constructing authorities	See *state constructing authorities*.
contracting governments	The contracting governments to the Murray-Darling Basin Agreement 1992, namely the Commonwealth Government, and the 'state contracting governments' of New South Wales, Victoria, South Australia and Queensland. As the Australian Capital Territory's participation in the *Murray-Darling Basin Initiative* is by memorandum of understanding (described in section 1.1), it is not a contracting government: see partner governments.
Council, the	See *Murray-Darling Basin Ministerial Council*.
cyanobacteria	A group of bacteria containing photosynthetic pigments, often forming problematic toxic blooms. Commonly referred to as 'blue-green algae'.
during the year	During the financial year 2000-2001, namely between 1 July 2000 and 30 June 2001.
EC (unit)	Electrical conductivity unit. 1EC = 1 micro-Siemen per centimetre, measured at 25° Celcius. Commonly used to indicate the salinity of water.

ecologically sustainable	Related to using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained and the total quality of life - now and in the future - can be increased.
entitlement flows	Minimum monthly River Murray flows to South Australia, as detailed in the *Agreement*.
gigalitre	One thousand million or 10^9 litres.
groundwater	The water in the saturated pores of soil or rock below the watertable.
Initiative	When the word *Initiative* is italicised, see *Murray-Darling Basin Initiative*.
integrated catchment management	A philosophy that considers the total long-term effect of land management practices on the soils, water, plants and animals of an entire catchment, from production and environmental viewpoints.
irrigation season	The period in which major irrigation diversions occur, usually starting in August-September and ending in April-May.
Murray-Darling 2001	A multi-partner funding program delivered through the Natural Heritage Trust. Details are in section 4.2.2.
MDBC	The Murray-Darling Basin Commission: see section 1.3.
megalitre	One million or 10^6 litres, about half the volume of an Olympic-sized swimming pool.
Murray-Darling Basin Agreement	Short form: the *Agreement*. The agreement between the contracting governments: see the introduction to section 1. The current *Agreement* is known as the *1992 Agreement*.
Murray-Darling Basin Initiative	Short form: *the Initiative*. Essentially, the partnership of governments and the community formed to enhance the environmental resources of the Murray-Darling Basin; defined more fully in the introduction to section 1.
Murray-Darling Basin Ministerial Council	Ministers holding land, water and environment portfolios in each contracting government. A minister of the Australian Capital Territory Government also participates under the terms of a memorandum of understanding described in section 1.1.
Natural Heritage Trust	The Commonwealth Government's Natural Heritage Trust was established by the Commonwealth Government in 1997 to fund environmental protection, sustainable agriculture and natural resource management.

Natural Resource Management Strategy	The over-arching strategy of the Murray-Darling Basin Initiative. See section 4.2.
off-allocation	Usage, or a period of usage, of water by irrigators when the usage is not counted against an irrigator's allocation. Periods of off-allocation for a given reach of a waterway are sometimes declared by a regional water authority when unregulated tributary flows or spills from storages produce a flow which is above the total downstream requirements for that reach.
out-of-balance	A term used in tables describing water held in storage by Victoria and New South Wales. It describes the difference in the volumes of water held in reserve in the Commission's storages for later use by those two states. Traditionally, because of Victoria's greater involvement in irrigation activities such as horticulture and dairying - as opposed to annual crops - Victoria has held more water in reserve than New South Wales.
overdraw	Borrowing next season's water from reserves, for use during the current season.
partner governments	The governments involved in the *Murray-Darling Basin Initiative*, namely the governments of the Commonwealth, New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory. See also *contracting governments*.
rain-rejection flows	It takes a number of days for water released from storage to travel to the point of use by irrigators. If rain occurs in this period, irrigators may not use all or part of the water which has been ordered. The unused water, termed 'rain-rejection', can result in an increase of streamflow downstream.
riparian	Of, inhabiting or situated on the bank and floodplain of a river.
River Murray system	The river system defined in section 3.2.
River Murray Water	An internal business unit of the Commission responsible by specific delegation for exercising the Commission's functions for water management and asset management.
salinity	The concentration of dissolved salts in groundwater or river water, usually expressed in EC units or milligrams of total dissolved solids per litre. The conversion factor is 0.6 milligrams per litre = 1 EC unit (but variable).

sales water	An allocation of water beyond the basic water allocation (or water right), which is available at a different price from the basic water allocation.
salinity credits	Accounting units for the Salinity and Drainage Strategy. Credits are obtained through measures that reduce the salinity of the River Murray.
Strategic Investigations and Education Program	The Commission's funding program to support knowledge generation. Details are in sections 4.2.2 and 4.3.
sleeper licence	An allocation of water to a user that has not been used in the past.
state constructing authorities	The New South Wales Department of Land and Water Conservation, Goulburn-Murray Water, and the South Australian Water Corporation.
surcharge	Water in a lake or reservoir above the nominal full supply level of the storage.
water right	The basic water entitlement or allocation to an individual water user.
water table	The surface below which the pores and fissures of the soil or rock are saturated with water.
water year	In relation to the Snowy Mountains Scheme, the 12 months from 1 May to 30 April. In relation to the River Murray system, the 12 months from 1 June to 31 May.

Index

E

F

G

H

I

J

L

M

N

O

P

R

S

T

V

W

Y