

# **BULK WATER PRICES**

**for 1998/99 & 1999/00**

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL  
OF NEW SOUTH WALES**

# **BULK WATER PRICES**

**for 1998/99 & 1999/00**

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## Foreword

Bulk water services continue to be an area subject to significant change. 1998 marked the beginning of moves to create a new entity called State Water within the Department of Land and Water Conservation (DLWC). This change will formally separate commercial water supply from resource management. When complete, institutional separation should allow DLWC to perform both activities more effectively.

DLWC has made considerable progress towards improving its information cost base and providing stakeholders with information on services provided and associated costs.

These developments have helped to inform debate on what costs should be recovered for water diversion and associated environmental impacts. Further progress will better enable the Tribunal to set prices in the future. In this determination the Tribunal has given stakeholders greater certainty by setting a two-year price path for bulk water services. A longer-term price path will be determined when DLWC has made further progress with institutional reform and costing information.

In determining maximum prices that can be charged for bulk water services, the Tribunal has made judgements on:

- what is an efficient cost level for the provision of bulk water services
- what proportion of costs is attributable to bulk water users
- how prices should be structured
- what is an appropriate transition path for any price change, with proper regard to social impacts and environmental concerns.

Considerable gaps in information have made the Tribunal's task extremely difficult. To assist in forming its judgements, the Tribunal has consulted widely with stakeholders through formal public hearings and submissions, and a number of meetings with stakeholders throughout the state.

Other issues impinge on bulk water services. Environmental groups have expressed concern about the effects of water diversion on the environment. On the other hand, some rural industries have suffered drought and declines in commodity prices and face restricted access to water in the future.

The Tribunal's determination is to apply for two years from July 1998 – June 2000. The determination establishes:

- a target for full cost recovery by region, based on best available information
- a two year price path with maximum price increases of up to 20 percent in any one year for the same amount of water usage
- elimination of the difference between industrial and other water use prices
- where water is metered, a price structure based on the relationship between fixed and variable costs
- where relevant, a clear statement of the remaining cost gap to achieve full cost recovery
- broad equivalence with prices in other states.

Thomas G Parry  
*Chairman*  
July 1998



**INDEPENDENT PRICING AND REGULATORY TRIBUNAL**  
OF NEW SOUTH WALES

**REPORT TO THE PREMIER ON MAXIMUM PRICES FOR BULK WATER SERVICES  
UNDER SECTION 12 (1)(a) OF THE INDEPENDENT PRICING AND REGULATORY  
TRIBUNAL ACT, 1992**

**Matter No.:** SPDR/95/01

**Determination:** No. 98-5

**Agency:** The Water Administration Ministerial Corporation (administered by the Department of Land and Water Conservation).

**Services:** Any services provided by the Water Administration Ministerial Corporation, to the extent that the service involves:

- a) the making available of water; or
- b) the making available of the Corporation's supply facilities; or
- c) the supplying of water, whether by means of the Corporation's water supply facilities or otherwise.

**Declaration of government monopoly services under Section 4 of the Act:**

Order dated 4 October 1995 - page 7115, Gazette No. 122

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## 1 INTRODUCTION

As required by section 12(1) of the *Independent Pricing and Regulatory Tribunal Act 1992*, the Independent Pricing and Regulatory Tribunal (the Tribunal) has investigated information presented by the Department of Land and Water Conservation (DLWC), on behalf of the Water Administration Ministerial Corporation, and determined maximum prices to be charged for bulk water services from 1 July 1998 and 1 July 1999.<sup>1</sup>

The Tribunal's determination of maximum prices for these services is set out in full in the Pricing Schedule at the end of this report.

## 2 THE PRICE DETERMINATION PROCESS

During March and April 1997, the Tribunal held public hearings in Grafton, Sydney and Bega. Copies of all submissions and transcripts of public hearings are available at the Tribunal's offices at Level 2, 44 Market Street, Sydney or can be viewed at the Tribunal's website, [www.ipart.nsw.gov.au](http://www.ipart.nsw.gov.au).

In May, 1998 workshops with key stakeholders were held in Tamworth, Dubbo, Bourke, Coffs Harbour, Goondiwindi and Albury.

Tribunal members who considered this bulk water determination are:

- *Dr Thomas G Parry, Chairman*
- *Mr James Cox, Full-time Tribunal Member*
- *Professor Warren Musgrave, Temporary Tribunal Member*

## 3 OVERVIEW OF THE DETERMINATION

The key features of the determination are:

- Maximum prices are set for a two year period to provide stakeholders greater certainty at a time when DLWC is separating its resource manager and resource operator functions and improving its information cost base.
- Prices for bulk water from regulated rivers will increase sufficiently to achieve target revenue increases of approximately 11 percent<sup>2</sup> in 1998/99 and 15 percent in 1999/00, depending on water usage.<sup>3</sup>
- Price on unregulated rivers have been restructured to make them fairer. Revenue will increase by 5 percent in 1998/99 and 8 percent in 1999/00. Some water users will

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<sup>1</sup> In all regions except the Barwon the water year runs from 1 July to 30 June. In the Barwon region the water year runs from 1 October to 30 September.

<sup>2</sup> Statewide water use in 1997/98 of 5.544 million ML was higher than average. This is reflected in proportionately higher revenue from bulk water prices in this year. Revenue estimates for 1998/99 and 1999/00 are based on DLWC's estimate of long term average usage of 5.154 million ML.

<sup>3</sup> The actual increase in revenue from 1997/98 to 1998/99 will depend on the water usage in each region. Assuming long term average usage, revenue from most regions will increase by 20 percent. However, revenues from the Gwydir and Border rivers will decline by 9 percent and 3 percent respectively to reflect anticipated efficiency gains.

experience price reductions when their water usage is metered, giving them the opportunity to reduce their bills by better managing water use.

- Prices for ground water have been increased to raise revenue by approximately 12 percent in 1998/99 and 7 percent in 1999/00.
- Maximum prices have been calculated on the assumption that DLWC can achieve efficiency gains of 20 percent between 1998/99 and 2000/01.
- Maximum prices set in this determination will allow some valleys to fully recover the Tribunal's assessment of the efficient level of costs DLWC should incur to supply bulk water services and resource management.

## **4 THE DETERMINATION**

### **4.1 Costs and revenues**

There is a substantial gap between 1997/98 revenues from bulk water services and DLWC's estimate of full cost recovery. Excluding a rate of return on existing assets, DLWC has estimated that users should be charged a total of \$74m a year (1996/97 prices). This figure increases by \$130m if a return of 6 percent on the depreciated replacement cost of assets is included. The actual revenue for 1997/98 is estimated to be \$28m, including licensing revenue.

The Tribunal has reviewed DLWC's efficiency targets and cost sharing proposals. On the basis of this review, the Tribunal has assessed full cost recovery at \$44m. This excludes any allowance for a rate of return on past investments. However, it is intended that future prices will include a commercial return on any new investments.

The Tribunal proposes that prices should increase to reduce the revenue deficiency. Full cost recovery revenue of \$44m has been calculated on a region by region basis. As a transition measure, the rate of increase in prices has been capped at around 20 percent a year for the two years 1998/99 and 1999/2000 (assuming long term average usage). Some regions will reach the Tribunal's definition of full cost recovery prior to 2000. In these cases, prices have been capped at full cost recovery levels.

The following table compares DLWC's estimates of the total costs it incurs in undertaking its bulk water responsibilities, including a rate of return of 6 per cent on existing assets (column 1), DLWC's estimate of the share of these costs that should be recovered from water users, excluding a rate of return (column 2), and the Tribunal's assessment of full cost recovery after allowing for proposed efficiency gains and amended cost sharing ratios (column 3).

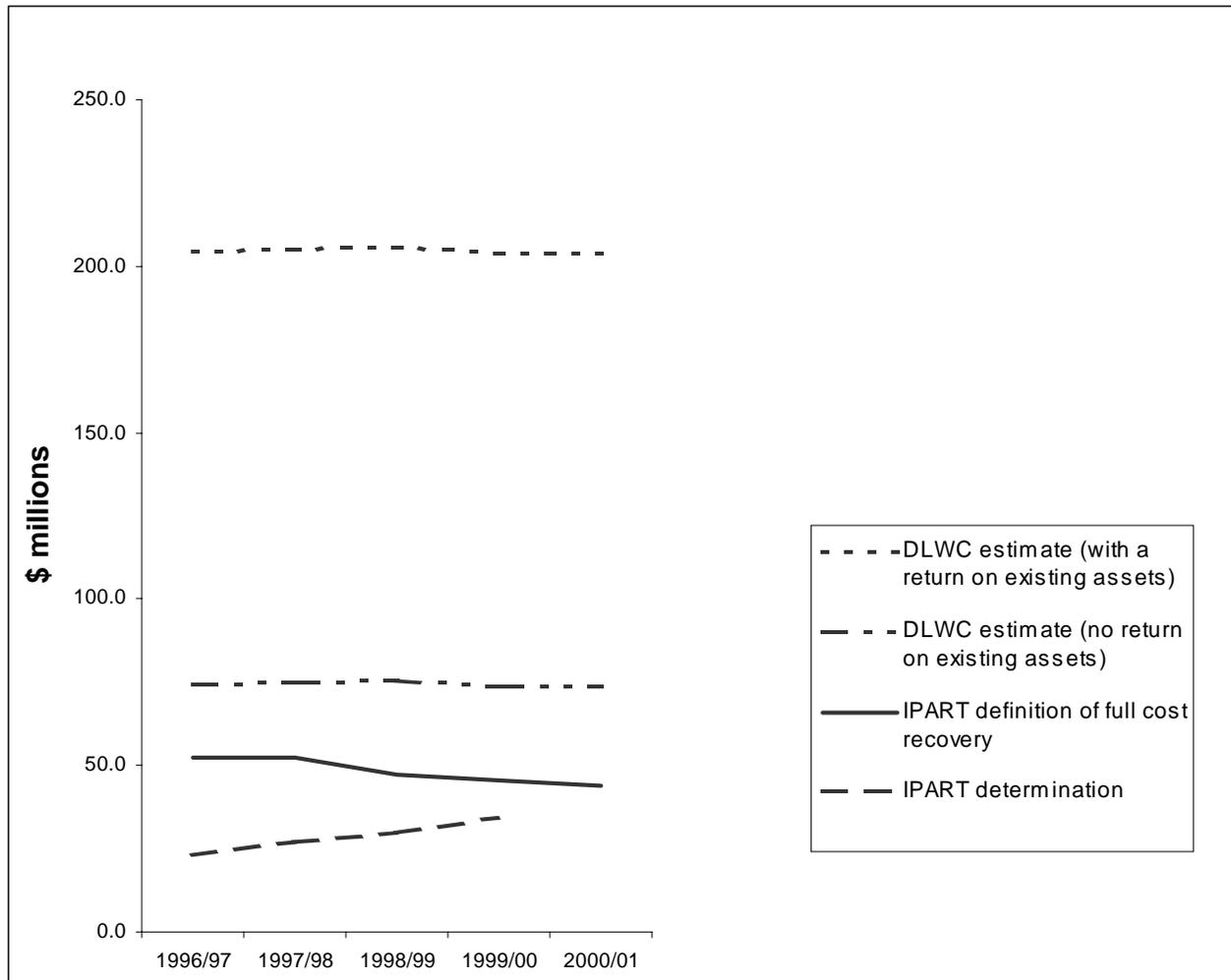
Also shown is DLWC's expected revenue from bulk water services for the 1997/98 year and the equivalent revenue if water diversions had equalled DLWC's assessment of the long term average water usage levels.

The information in Table 4.1 is presented graphically in Chart 4.1 on page 4.

Table 4.1 Bulk water costs and revenues (\$1996/97)

	DLWC Submission	DLWC User Share	Tribunal User Shares
Base Costs	78,714,760	50,013,760	50,013,760
Revisions to database after submission			667,309
Cost sharing adjustment (compared to DLWC ratios)			-12,371,020
Efficiency			-7,113,639
Asset Annuity	8,153,000	7,337,700	7,337,700
Water Implementation	12,344,940	7,761,412	
Estimated MDBC Annuity	5,000,000	4,500,000	1,800,000
<b>Sub-total</b>	<b>104,212,700</b>	<b>69,612,872</b>	<b>40,334,110</b>
Licensing costs	4,579,240	4,579,240	4,579,240
Efficiency			-1,273,029
Rate of Return @ 6%	130,230,000		
<b>Total</b>	<b>239,021,940</b>	<b>74,192,112</b>	<b>43,640,321</b>
Revenue from water charges at actual 1997-98 usage		26,498,000	26,498,000
Revenue from water charges at long term average usage		25,787,000	25,787,000
Revenue from licence charges		1,515,000	1,515,000
Shortfall on long term usage revenues (excl return on assets)		46,890,112	16,318,322
Increase in revenues required to achieve cost recovery		172%	60%

Chart 4.1 Progress to cost recovery of bulk water services (\$1996/97)



- 1 DLWC's higher estimate includes a return on existing assets of \$130m (6 percent return on replacement cost).
- 2 DLWC estimates assume, DLWC's proposed cost sharing ratios, growth in costs of 2.8 percent in 1997/98 and 1998/99, offset by efficiency targets of 2.1 percent per annum.
- 3 IPART full cost recovery assumes IPART's cost sharing ratios, efficiency targets of 20 percent over three years (10 percent in 1998/99) for water delivery and resource management costs (\$40.3m at 2000/01) and efficiency targets of 30 percent over three years (20 percent in 1998/99) for licensing costs (\$3.3m at 2000/01).

The variation between the DLWC's and the Tribunal's definitions of full cost recovery is explained by:

- The application of an assumed efficiency factor of 10 percent in 1998/99 (20 percent for licensing expenditure), then 5 percent for the two subsequent years (discussed in section 7.1.2). DLWC's cost information does not provide for any historical analysis of cost trends. DLWC has yet to supply the Tribunal with performance benchmarks, either between regions or with other states. New financial systems are being established by DLWC, but collection of data will be a lengthy process.
- Exclusion of the costs of the water reform package (section 7.2.1). This is seen as core government activity. However, activities will stem from the water reform package when implemented. The cost of these activities will be assessed once these activities have been defined and their costs are known.
- A reduction in DLWC's estimate of the asset renewals annuity to be charged by the Murray Darling Basin Commission (MDBC) pending final figures (section 7.1.1).
- The Tribunal's assessment of how individual product/service costs should be shared (section 7.2.1 and Appendix 2). Establishing State Water as a separate unit within DLWC will narrow the debate on how costs should be shared. However, there will be ongoing debate about which activities relate to core government, the general community, and licensed water users, respectively. The Tribunal has adopted DLWC's assessment that 90 percent of infrastructure costs should be charged to licensed bulk water users.
- The Tribunal's not allowing a rate of return on past investment.<sup>4</sup> It intends to include a rate of return on new efficient investment (section 7.1.1).

## 4.2 Cost recovery

The proposed increases in prices will not quite achieve full cost recovery in all regions within this two-year price determination period. The following table quantifies the shortfall from full cost recovery for 1997/98 through to 2000/01.

**Table 4.2 Summary of shortfall from full cost recovery (1996/97 \$m)**

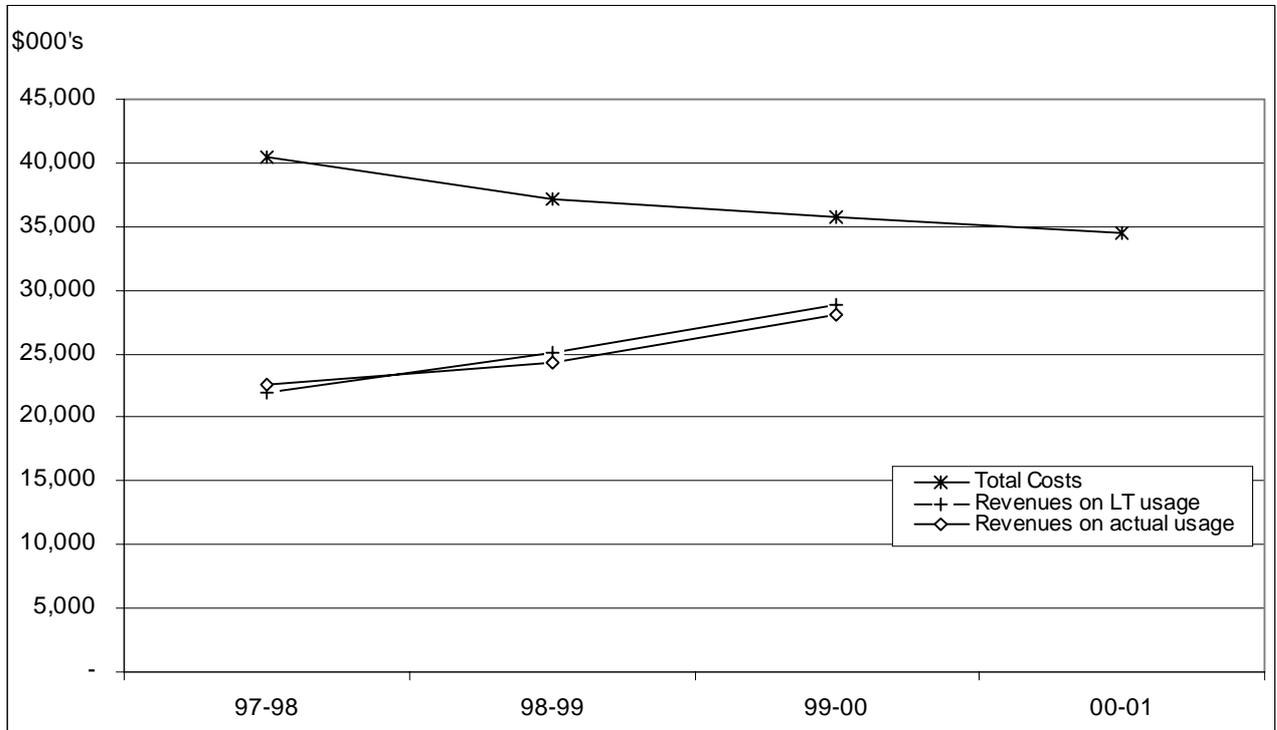
Water source	1997/98	1998/99	1999/00	2000/01 <sup>2</sup>
Regulated rivers <sup>3</sup>	18.5	12.1	7.0	3.0
Unregulated rivers	1.2	0.7	0.3	0.0
Ground water	2.1	1.5	1.3	1.0
Licensing <sup>1</sup>	3.1	2.1	2.0	1.8
<b>Total</b>	<b>24.9</b>	<b>16.4</b>	<b>10.6</b>	<b>5.8</b>

1. The Tribunal's assessment of state wide efficient licensing costs is \$3.3m, actual costs are \$4.6m, licensing revenue is \$1.5m.
2. Figures for 2000/01 are shown for illustrative purposes, on the assumption that price increases in 1998/99 and 1999/00 are continued in 2000/01.
3. Shortfall for regulated rivers is based on DLWC's estimated long term usage.

<sup>4</sup> See IPART, *Bulk water prices: an interim report*, October 1996, sections 5.3 and 5.5, pp 51 - 57.

The difference between revenue and total costs for regulated, unregulated and ground water bulk water services is illustrated in the following graphs. The regional equivalents of these graphs are shown in Appendix 4.

**Chart 4.2 Regulated rivers costs and revenue (\$1996/97)**



**Chart 4.3 Unregulated rivers costs and revenue (\$1996/97)**

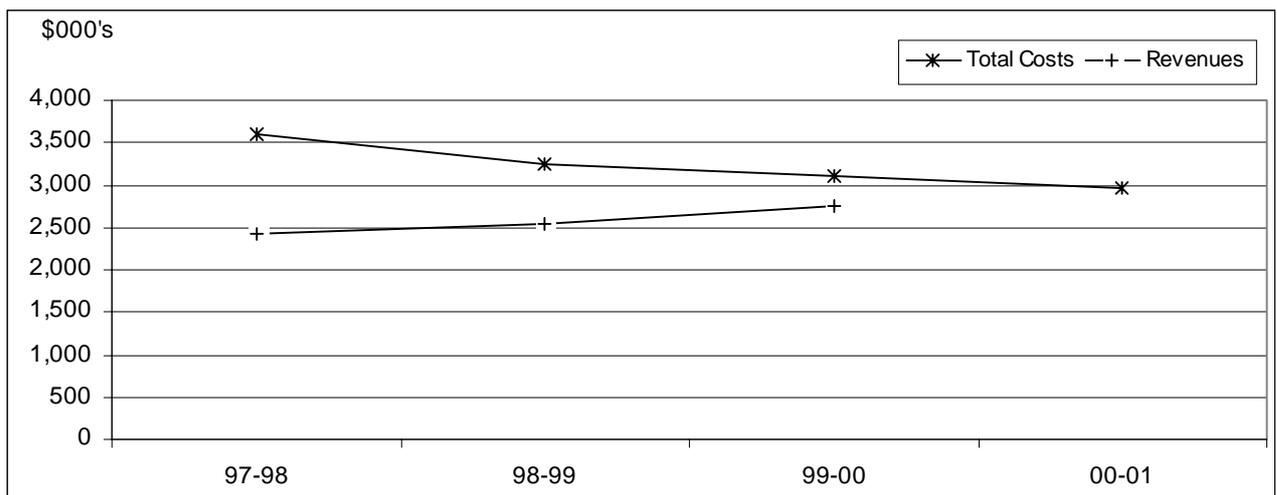
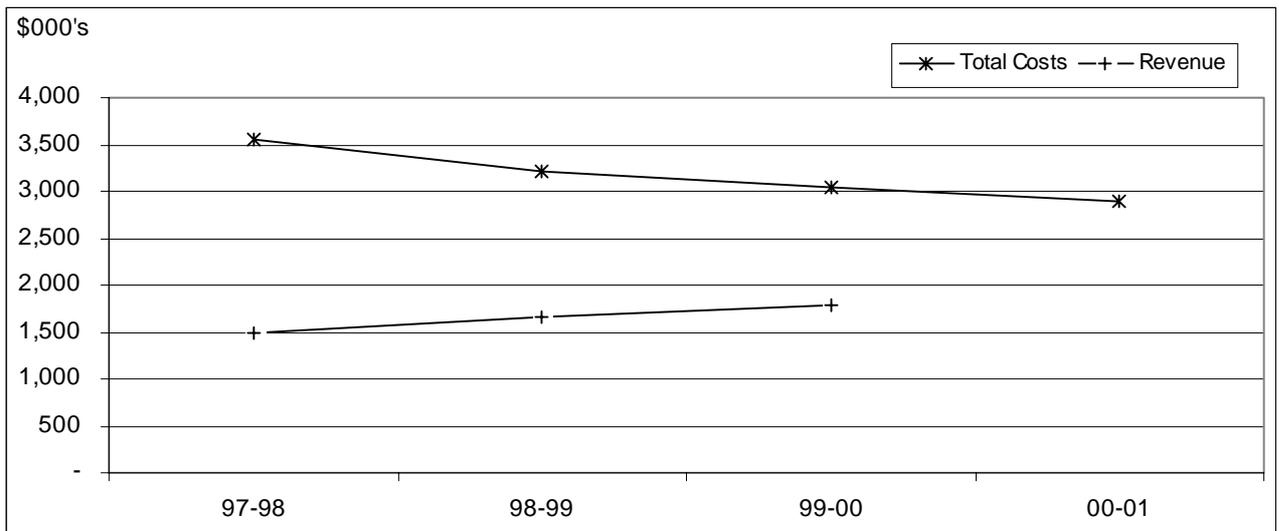


Chart 4.4 Ground water costs and revenue (\$1996/97)



### 4.3 Bulk water prices

The following tables summarise bulk water prices through to 1999/00.

**Table 4.3 Regulated rivers' prices**

Valley	1997/98			1998/99			1999/00		
	Fixed Charge (\$/ML of entitlement)		Usage Charge (\$/ML of usage)	Fixed Charge (\$/ML of entitlement)		Usage Charge (\$/ML of usage)	Fixed Charge (\$/ML of entitlement)		Usage Charge (\$/ML of usage)
	High	Low.		High	Low		High	Low	
Security									
<b>Murray and Lower Darling</b>	2.53	2.30	0.60	3.04	2.76	0.72	3.64	3.31	0.86
<b>M'bidgee</b>	2.42	2.30	0.60	2.90	2.76	0.72	3.30	3.13	0.82
<b>Lachlan</b>	3.15	2.10	2.60	3.78	2.52	3.12	4.54	3.02	3.74
<b>Macquarie</b>	2.60	2.00	2.70	3.12	2.40	3.24	3.74	2.88	3.89
<b>Namoi (incl Peel)</b>	4.50	3.00	3.50	5.40	3.60	4.20	6.48	4.32	5.04
<b>Gwydir</b>	4.50	3.00	3.50	4.11	2.74	3.19	4.11	2.74	3.19
<b>Border</b>	4.50	3.00	3.50	4.38	2.92	3.41	4.38	2.92	3.41
<b>Hunter</b>	3.08	2.20	2.50	3.70	2.64	3.00	4.44	3.17	3.60
<b>Toonumbar</b>	3.90	3.00	2.00	4.68	3.60	2.40	5.62	4.32	2.88
<b>Brogo</b>	3.90	3.00	2.00	4.68	3.60	2.40	5.62	4.32	2.88

1. Prices on regulated rivers are valley or region based as shown in Table 4.3.
2. The Tribunal has revised its 1997/98 determination to reduce prices to industrial licence holders from \$10/ML to the applicable valley's two part tariffs for high security licences shown in the first three columns of Table 4.3.
3. All high security licences (including industry licences) pay the high security fixed charge on each ML of licence entitlement and the usage charge on each ML of water usage.
4. All low security licences pay the low security fixed charge on each ML of licence entitlement and the usage charge on each ML of water usage.
5. The usage charge is paid on all water used, whether this is designated as allocation, off-allocation, high flow or any other form of supply.

**Table 4.4 Unregulated rivers' prices**

	\$	1997/98		1998/99		1999/00	
		Usage charge	Area charge	Usage charge	Area charge	Usage charge	Area charge
		\$/ML usage	\$/hectare	\$/ML usage	\$/hectare	\$/ML usage	\$/hectare
Minimum bill if charged by area	50		3.75		4.50		5.40
Base charge if charged for usage	100	0.47		0.60		0.75	

1. Prices apply to all regions except the Murray, which is close to full cost recovery on current information.
2. 1998/99 & 1999/00 prices for the Murray region are capped at 1997/98 levels.

Table 4.5 Ground water prices

	1997/98	1998/99	1999/00
Base charge - management areas (\$)	100	100	100
Base charge - non management areas (\$)	75	75	75
Fixed charge (\$/ML licence entitlement) all areas	0.40	0.50	0.60
Usage charge (\$/ML usage) management areas	0.20	0.25	0.30

1. 1998/99 & 1999/00 prices in Table 4.5 apply to all regions except the Murrumbidgee and Barwon regions, which are close to full cost recovery on current information.
2. Murrumbidgee and Barwon ground water prices for 1998/99 and 1999/00 will be capped at 1997/98 levels.
3. In 1997/98, the first 20 ML of licence entitlement and usage were not charged.
4. For 1998/99 and 1999/00, the entitlement charges applies to all MLs of licence entitlement, and the usage charge applies to all usage in management areas.
5. Usage in non-management areas is generally not reliably metered.

Some minor charges are contained in the Pricing Schedule at the end of this report.

All other prices or charges for bulk water services provided by the Water Administration Ministerial Corporation not referred to in this determination are to remain at 1996/97 levels.

The Water Administration Ministerial Corporation cannot levy any new or additional charges for any bulk water services other than in accordance with this determination, or with Tribunal approval in future determinations.

New and existing voluntary charges can continue to be negotiated between the Water Administration Ministerial Corporation and water users without referral to the Tribunal.

## 5 BASIS OF DETERMINATION

The Tribunal's legislation specifies certain matters that the Tribunal must consider in making a determination. These are discussed in detail in section 7. Key issues addressed in making this determination are:

1. **Efficient costs:** Do DLWC's costs represent efficient levels of service delivery? How are costs likely to change in the future?
2. **Cost sharing:** Who should pay for DLWC's activities, particularly resource management?
3. **Price structure:** What is the appropriate structure for bulk water prices to promote economic efficiency and ecologically sustainable development? What is the best way to eliminate price anomalies?
4. **Impact of increased prices:** What is likely to be the impact of increased prices on average bills? How might increased prices affect particular enterprises, industries or communities?

### 5.1.1 Efficient costs

Full recovery of efficient costs requires that prices for bulk water should reflect the appropriate share of total operations, maintenance and administration costs, capital charges and environmental costs.

DLWC conducts its bulk water and water resource management activities within a broader range of programs. DLWC estimates that \$108.792m will be incurred in 1998/99 to supply bulk water and resource management services<sup>5</sup> (discussed in section 7.1). DLWC's total expenditure on managing land, water and vegetation resources in 1996/97 was \$519.046m.

Correct ring fencing of the operations, maintenance and administration costs of bulk water and resource management activities has been a major issue in previous Tribunal reviews. Prior to 1 July 1997, DLWC's financial reporting system did not differentiate costs of water management and supply. The costs of activities associated with managing land, water and vegetation were recorded under a common reporting structure.

Since 1 July 1997, DLWC has adopted a revised reporting structure which better separates water related activities. However, 1996/97 cost information (recorded under the previous reporting structure) was the most recent data available for DLWC's 1998 pricing submission. DLWC manually coded over 2000 individual activities within these costs to translate them to the revised financial reporting structure which has been in place from 1 July 1997.

This laborious task would have been unnecessary had DLWC adequately dealt with its financial management problems in the three and a half years since its creation. While the resultant cost information is significantly more useful than that submitted in previous DLWC submissions, the Tribunal is still concerned about the reliability of the data.

For example, water users have argued that the cost of staff engaged in vegetation reforms have been accounted as water related expenses.<sup>6</sup> The way various regions record accounting information is inconsistent.

The pricing of appropriate capital charges for bulk water assets is an issue subject to considerable debate, both in the Tribunal's previous reviews<sup>7</sup> and in national water policy debate<sup>8</sup> (discussed in section 8).

The Tribunal has also argued that charges for the use of existing assets should reflect loss of service capacity, calculated to raise the forecast cost of major maintenance, refurbishment and replacement expenditure (by way of an annuity payment). DLWC's asset renewal annuity is discussed in section 7.1.1.

The Tribunal has argued that commercial, risk-adjusted rates of return should be earned on new investments, but that previous investments in the NSW water industry were undertaken for a variety of reasons other than commercial, and a return on these investments is not warranted.<sup>9</sup>

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<sup>5</sup> DLWC main submission, February 1998, section 5.13, p 41.

<sup>6</sup> See, for example, the submission of the Hunter Valley Water Users Association.

<sup>7</sup> See for example, IPART, *Bulk Water Prices: an interim report*, October 1996, Chapter 5.

<sup>8</sup> See also the *Report of the Expert Group on Asset Valuation Methods and Cost Recovery Definitions for the Australian Water Industry*, paragraph 5.25.

<sup>9</sup> IPART, *Bulk Water Prices: an interim report*, October 1996, section 5.4, p 55.

Environmental externalities are costs imposed on the environment which are not reflected in the price charged for use of water resources. Some of DLWC's resource management work is undertaken to mitigate the effects of river regulation and water usage. DLWC has used a proportion of its water resource management costs as a proxy for the value of environmental externalities from river regulation and water use.

Deciding on the correct apportionments of these costs has proven a challenging task for the Tribunal. Work required to mitigate the impact of current water use is carried out as part of DLWC's wider resource management responsibilities to manage conflict over access to resources, plan for future use of resources, and mitigate past environmental damage. This is discussed more fully in the next section on cost sharing.

DLWC proposes that potential efficiency gains across all of its costs will no more than offset increases in inflation.<sup>10</sup> The Tribunal thinks there is considerably more scope for efficiency gains in how DLWC delivers bulk water and resource management services (discussed in section 7.1.2). Concern regarding the reliability of data and scope for efficiency gains has, however, led the Tribunal to be conservative in determining the rate of increase of prices to full cost recovery.

### 5.1.2 Cost sharing

Most of DLWC's bulk water related activities generate benefits enjoyed jointly by licensed water users and other beneficiaries. The Tribunal has considered the application of polluter-pays and beneficiary-pays principles to share DLWC's costs in section 7.2.

DLWC's role in the NSW water industry is very broad. It is responsible for the:

use, management and development of NSW water resources in a way that fosters economic development, but also meets the community's social and environmental needs.<sup>11</sup>

Consequently, many groups benefit from DLWC's activities. DLWC identifies its stakeholders as:<sup>12</sup>

1. the general community, which benefits from DLWC's role in allocating water, protecting and maintaining aquatic ecosystems, and assessing and protecting water quality
2. customers who receive services directly, and are charged for these services (irrigators, other farmers, country towns and industry)
3. water users who receive services, but are not charged by DLWC for the services they receive (riparian water users, recreational water users and non-extractive commercial ventures)
4. all levels of government.

Some of DLWC's resource management activities address environmental problems caused by identifiable pollution sources. The costs of mitigating these problems should be paid by those contributing to the problem. However, many environmental problems result from diffuse sources over long periods, making it difficult to accurately identify polluters and collect payment.

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<sup>10</sup> DLWC main submission, section 5.12, p 40.

<sup>11</sup> DLWC, main submission, p 6.

<sup>12</sup> DLWC, main submission, p 11.

DLWC has proposed a matrix for sharing its costs. The matrix addresses cost sharing for particular products within its financial reporting structure. The Tribunal's Secretariat has developed its own proposed cost sharing matrix and conducted a series of regional workshops during May 1998 to discuss it with stakeholders. Drawing on the views expressed, the Tribunal has determined that DLWC's costs should be shared according to the matrix of ratios set out in Table 7.3 below and discussed in Appendix 2.

### **5.1.3 Price structure**

In its 1997/98 determination, the Tribunal introduced two-part tariffs for regulated rivers, with a fixed charge on licence entitlement to recover fixed bulk water costs, and a variable charge on water usage to recover variable costs and promote demand management. Charges vary between regions. This is partly to reflect different cost structures and securities of supply, and also as a transitional step to minimise individual bill increases given that 1996/97 charges had (in effect) a particular balance of fixed and usage components.

For 1998/99, DLWC argued that prices will be more cost-reflective and equitable if they generate 70 percent of revenue from fixed charges and the remaining 30 percent from variable charges in each valley.

The Tribunal has set prices for 1998/99 and 1999/00 that maintain the 1997/98 balance of fixed and usage charges in each regulated river valley. At a statewide level, 68 percent of revenue will come from fixed charges (assuming long term average usage). However, prices in northern valleys are weighted towards water usage. Prices in southern valleys are weighted towards recovering more fixed charges. Specific tariff problems are discussed in section 9. Issues of demand management are discussed in section 7.4.2.

Pricing for water use on unregulated rivers is constrained because existing licences are area-based and most water users (with the exception of towns) are not metered. In this situation, allowable irrigation area is a rough proxy for usage. In 1997/98, the Tribunal set a stepped scale of fees based on licence area. The Tribunal adopted this price structure as an interim step to bring charges more in line with water usage while minimising impacts on individual users bills.

For 1998/99, DLWC proposes that these prices be revised to a flat fee per hectare. The Tribunal has approved charges for 1998/99 and 1999/00 based on the revised structure because it is a better proxy for water usage, until water usage is metered or otherwise monitored.

The Tribunal has also revised its 1997/98 determination to replace the stepped scale of fees with a flat charge of \$3.75 per hectare, but maintaining the minimum bill of \$50. This removes inequities between water users paying very different bills while holding similar sized licences (one below a step in the fee scale and the other marginally above). Any water users affected by this revision will receive a reduction in their bill.

The Tribunal has maintained 1997/98 price structures for ground water. Charges are a base charge per property, a fixed charge on licence entitlement in all areas and a variable charge on water usage in defined ground water management areas (where water is metered).

### 5.1.4 Impact of increased prices

Water users are very concerned about the impact of increased water charges on the viability of certain irrigation businesses, and on the prosperity of regions dependent on irrigated agriculture. The impact of the determined prices is discussed in section 7.2.3 and 7.2.4. While the Tribunal acknowledges the concerns raised in many submissions, bulk water costs remain a small component of farm costs.

The following table reflects typical gross margins per ML of water use for a range of crops. Gross margins do not indicate profitability. However, they do show that gross revenues per ML of water used are many times the price of bulk water.

**Table 5.1 Gross margins from selected irrigated crops (\$/ML)**

Crop	Average	Top
Soybean	101	333
Lucerne	123	633
Maize	140	258
Rice	177	271
Wheat	198	363
Tomatoes	550	2,242
Wine grapes	1,056	5,327

Source: *Water Hazards*, Asa Wahlquist, *The Australian*, 10 June 1998, p 36.

## 6 SUBMISSIONS

### 6.1 Submissions by DLWC

DLWC prepared a main submission<sup>13</sup> which was sent to stakeholders in February 1998. DLWC also prepared a series of eight regional information documents in support of its main submission. These were made available to stakeholders from DLWC's regional offices and at a series of meetings held by DLWC in February and March 1998.

DLWC presented information on the costs it incurred in 1996/97 (and costs it anticipates incurring in 1998/99) to help the Tribunal determine charges to apply from 1 July 1998.

In its submission DLWC has:

- Proposed that certain costs be recovered in bulk water charges. These are primarily the costs of 22 water-related products, plus additional amounts for asset-related charges (asset refurbishment and a return on investments) and implementation of the Government's recent water reform policies.
- Explained each product (in the regional information documents) in terms of its justification, method of delivery, outcomes and beneficiaries.
- Proposed statewide ratios by which these costs should be shared between licensed water users and government on behalf of a range of other beneficiaries.

<sup>13</sup> DLWC, *Submission to the Tribunal on Bulk Rural Water Pricing*, February 1998.

- Compared costs with revenues at a valley level by way of graphs showing increases in revenue required to achieve full cost recovery by 2000/01.<sup>14</sup>
- Nominated potential efficiency gains.
- Proposed price structures for a majority of existing bulk water prices.

The details of DLWC's submission are discussed throughout this report.

## **6.2 Other submissions**

The Tribunal received 131 submissions in response to the DLWC's pricing submission. A full list of submissions is contained in Appendix 1.

Key issues raised in the submissions are:

- widespread concern about the lack of transparency in DLWC financial information and the poor accountability of DLWC for quality of service standards
- willingness on the part of most customers to pay increased charges if it can be demonstrated that prices are fair, free of cross-subsidy and recover only the efficient costs of necessary bulk water activities
- many region-specific factors, licence system deficiencies and localised tariff problems which reinforce the need for a regional approach
- concern over the gap between DLWC's figures for full cost recovery and revenue raised from current charges
- concern over the impact of increased charges on rural economies and communities
- the need to fully account for environmental costs in water charges
- broad support for institutional reform such as further devolution of water infrastructure management to create an efficient bulk water business which is customer focused.

The Tribunal thanks all the contributors for their continued valuable participation in the review.

## **7 ISSUES CONSIDERED BY THE TRIBUNAL UNDER SECTION 15**

The Tribunal is required to have regard to matters listed in Section 15 of the *Independent Pricing and Regulatory Tribunal Act 1992* and to indicate how it has considered them. These matters are discussed in this section.

The Tribunal may also have regard to any other matters it considers relevant and these are discussed in section 8 below.

### **7.1 Costs and efficiency**

\* *the cost of providing the services concerned [S15(1)(a)]*

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<sup>14</sup> This is the deadline by which all Australian governments have agreed to ensure bulk water prices fully recover the costs of bulk water businesses in the Australian water industry. This is discussed in more detail in section 8.

- \* *the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers [S15(1)(e)]*
- \* *the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body [S15(1)(h)]*
- \* *the need to promote competition in the supply of the services concerned [S15(1)(i)]*

Prices for bulk water services should recover the efficient costs incurred by DLWC in delivering bulk water and administering the associated resource management and licensing activities.

### 7.1.1 Cost of providing the services

DLWC's estimate of its bulk water related expenditure in 1998/99 is shown in Table 7.1. DLWC estimates that \$108.792m will be incurred to supply bulk water and resource management services in 1998/99.<sup>15</sup> The Tribunal's views on the efficiency with which these costs are incurred, are discussed in section 7.1.2 below.

**Table 7.1 Summary of total costs estimated by DLWC**

<b>Cost category</b>	<b>Total costs (\$ 000s)</b>	<b>DLWC's proposed user share (\$ 000s)</b>
1996/97 actual costs <sup>1</sup>	83,294	54,593
Asset Annuity <sup>2</sup>	8,153	7,338
Water reform <sup>3</sup>	12,345	7,761
Forecast MDBC annuity	5,000	4,500
<b>Total</b>	<b>108,792</b>	<b>74,192</b>

1. Actual costs in 1996/97 have been calculated by mapping aspects of DLWC's previous financial reporting structure to bulk water related products in the financial reporting structure in place from 1 July 1997.
2. DLWC main submission, section 5.6.
3. DLWC revised their anticipated expenditure on water reform from \$14,145,000 to \$12,344,900, subsequent to their submission.

Source: DLWC main submission, p 41.

Table 7.1 includes costs billed to DLWC by the Murray Darling Basin Commission (MDBC) and Dumaresq Barwon Border Rivers Commission (DBBRC). These costs were incurred to service NSW water users.<sup>16</sup>

Murray Irrigation Limited is concerned about the efficiency of costs charged to DLWC by the MDBC and the mechanism by which DLWC has attributed these costs to water users.<sup>17</sup> The Tribunal has reviewed the MDBC costs presented in Appendix 3 of the DLWC main submission and looked at how these costs have been mapped to DLWC's bulk water-related

<sup>15</sup> DLWC main submission, section 5.13, p 41.

<sup>16</sup> DLWC has mapped MDBC and DBBRC costs to DLWC products as shown in Appendix 3 to DLWC's main submission. These costs have been allocated to water users using the matrix of ratios used to share DLWC's other costs between government and water users.

<sup>17</sup> Murray Irrigation Limited, submission dated March 1998, p 1.

products. The Tribunal is satisfied these costs have been attributed in the same manner as DLWC's other costs.

However, the Tribunal is concerned that no effective mechanism exists for regulating MDBC's water business. The Tribunal will ask DLWC to review available mechanisms for the transparency and accountability of MDBC water business costs in its price proposals for the next review.

### *Costs of asset consumption*

The Tribunal has argued that bulk water prices should include a charge which reflects the loss over time of the service capacity of infrastructure assets (calculated as a renewals annuity based on an asset management plan).<sup>18</sup>

In its 1997/98 pricing submission, DLWC projected that expenditure on infrastructure maintenance, refurbishment/replacement, upgrading and growth over the next 30 year period would be \$861m.<sup>19</sup> This included the NSW Government's contribution to the maintenance and refurbishment of Murray Darling Basin Commission (MDBC) assets. The annuity amount to fund the DLWC program was \$31.7m per annum.

In its 1998/99 submission, DLWC has revised the proposed asset annuity to include only major periodic maintenance and replacement expenditure. Routine maintenance is included in the product costs. The costs of upgrading and of growth related expenditure have been excluded from the annuity calculation. The proposed annuity has been reduced to \$8.153m per annum, and is based on planned expenditures over a 30 year period, details of which are contained in section 5.6 of DLWC's main submission.

Table 7.2 summarises DLWC's proposed asset renewal annuity for each region. Table 7.2 includes expenditure to refurbish assets on regulated and unregulated rivers.

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<sup>18</sup> IPART, *Bulk Water Prices: an interim report*, section 5, pp 49 - 58.

<sup>19</sup> Details of these costs were summarised in Table 7.1 on p 74 of the DLWC's January 1997 submission. Expenditure shown in Table 7.1 should total \$861m when some typographical errors are corrected.

Table 7.2 DLWC proposed asset renewal annuity costs by region/valley

Valley/Region	Annuity (\$'000)
Border	431
Gwydir	709
Namoi and Peel	745
Lachlan	968
Macquarie	926
Murrumbidgee	1,978
Murray and Lower Darling (excluding MDBC Costs)	1,607
Hunter	412
North Coast	53
Sydney/South Coast	100
Barwon Darling	195
Intersecting Streams	29
<b>Total</b>	<b>8,153</b>

1. A discount rate of 6 percent has been used in calculating the annuity amounts in Table 7.2.  
Source: Table 5.4, DLWC main submission, p 32.

DLWC's revised **renewals annuity** estimates expenditure required to maintain the service capacity of exiting assets. DLWC has differentiated the projected costs of capital expenditure to meet raised standards (environmental and dam safety related) and growth. None of this expenditure is planned to take place within the next two years. DLWC proposes that these capital expenditure costs be recovered by an additional **capital annuity** when the expenditures occur.

Murray Irrigation Limited has argued that the annuity calculation should be based on planned maintenance and refurbishment expenditure over the coming five years. Any longer period requires expenditure projections that cannot be made with sufficient confidence.<sup>20</sup>

The Tribunal believes that the annuity should be calculated on the basis of 30 year projections as this better reflects the refurbishment cycle of major water infrastructure assets.

Expenditure of \$8.355m is planned to complete a Total Asset Management Plan for DLWC's water related assets. Work identified to complete the plan includes:

- portfolio risk assessment
- major weir risk assessment
- minor weir risk assessment
- dam risk assessment
- dam building condition assessment
- computerisation of dam maintenance
- weir feasibility studies

<sup>20</sup> Murray Irrigation Limited, submission dated March 1998, p 1.

- management information systems.

DLWC's planned expenditure on assets over the next five years includes:

- routine and major periodic maintenance of dams and river structures (\$7m calculated from pre-existing maintenance schedules)
- major renewals expenditure on rehabilitation of dam spillway gates and flood warning systems (\$5.828m) and rehabilitation and replacement of some river structures (\$13.8m).

DLWC's projections of costs for capital maintenance and expenditure beyond 2000/01 may be revised considerably when:

- risk assessments are made of all dams and river structures as part of the Total Assessment Management Plan
- State Water is required to alter its operation and management of dams to meet river flow regimes consistent with the planned river flow and water quality objectives.<sup>21</sup>

Any such revisions may require changes to the annuity.

Several submissions from water user groups argue that an annuity fund should be preserved for asset work and not be used elsewhere by DLWC or remitted to NSW Treasury. NSW Treasury has argued that cash reserves should not be retained within government agencies as it is more efficient to centrally manage NSW government finances.

The Tribunal has argued that the primary reason for using an asset annuity approach for bulk water prices is to ensure prices accurately reflect the resources utilised to supply those services. An asset annuity more accurately reflects the funds required to maintain the service capacity of infrastructure than does accounting depreciation.<sup>22</sup> The second reason for recovering the asset annuity is to ensure that sufficient funds are available to cover essential maintenance and renewal and, ultimately, replacement, when this becomes necessary.

If the funds recovered are remitted to Treasury, it is expected that funds will be made available by the Government as required to maintain DLWC water infrastructure in line with the Total Asset Management Plan.

DLWC expect that an asset renewal annuity of approximately \$5m per annum will be charged to NSW by the Murray Darling Basin Commission (MDBC) from 1999/00. The annuity will cover maintenance and refurbishment of MDBC assets servicing NSW irrigators. DLWC argue that a major part of the anticipated MDBC asset annuity should be recovered from Murray valley irrigators.

The Tribunal has set prices for 1998/99 and 1999/00 based on estimates of full cost recovery at 2000/01. Some contribution towards the MDBC asset annuity should be included in assessing full cost recovery in the Murray valley. However, the Tribunal is concerned that the MDBC asset annuity is a general estimate provided to DLWC by the MDBC. It is not based on engineering assessments of asset condition or financial calculations from an asset management plan.

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<sup>21</sup> River flow objectives and water quality objectives are being set for each NSW catchment following consultative processes conducted by EPA and DLWC during 1997 and 1998.

<sup>22</sup> To calculate an asset annuity requires an independent assessment of the total funding needed for all asset refurbishment and replacement over a given period (say 30 years). The annuity calculation provides an equal annual charge that if invested at an assumed interest rate will fully fund these works.

The Tribunal has capped the MDBC asset annuity at \$2m. This is an arbitrary limit based on the DLWC asset annuity for the Murrumbidgee valley shown in Table 7.2. The figure of \$2m is a more reasonable estimate of the likely MDBC asset annuity for the Murray Valley. Both the Murrumbidgee's and the MDBC's assets (specifically Hume dam) have recently been substantially refurbished and future refurbishment requirements should be comparable.

Total asset annuity costs for the Murray valley will therefore be \$3.607m, being \$2m for refurbishment of MDBC assets plus \$1.607m (shown in Table 7.2) for refurbishment of DLWC owned assets.

#### *Return on capital*

DLWC's submission presents the costs of a 6 percent (real, pre-tax) rate of return on infrastructure assets valued on a modern engineering equivalent replacement cost basis.<sup>23</sup> This adds an annual cost of \$130.23 m to DLWC's total bulk water related costs.

The Tribunal has argued that a return should be charged on new investments only. Existing assets should be treated as sunk costs<sup>24</sup> with charges limited to the costs of maintaining service capacity. Consequently, the Tribunal has valued DLWC's existing asset base at \$0 for regulatory purposes.

This asset value should be reviewed over time. As new investments are made, they should be added to the asset base at cost and inflated through time in line with the consumer price index.

To give the correct signal for efficient investment, new investments should earn a commercial, risk-adjusted rate of return. If prices are not sufficient to earn this return, the investment may be more appropriately made in other services for which there is greater demand, or subject to an agreed, explicit CSO subsidy.

There is a difference of opinion concerning whether major refurbishment and replacement expenditure should be added to the asset base when its purpose is to maintain the existing service capacity of the assets.

The Tribunal feels major refurbishment and replacement expenditure on rural bulk water assets should be capitalised. Existing infrastructure has been treated as sunk investments with no opportunity cost and, given current levels of cost recovery, valued at \$0. However, DLWC cannot be expected to refurbish and replace these assets into the future without consideration being given to the opportunity cost of additional capital expenditure.

If DLWC's assets were valued at some positive value (whether at replacement cost or some other valuation method), it would not be appropriate to capitalise expenditure designed to maintain existing service capacity.

In practice, it may be difficult to distinguish refurbishment and replacement expenditure from routine and major periodic maintenance. DLWC and State Water should ensure routine maintenance expenditure is correctly defined and not capitalised.

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<sup>23</sup> DLWC main submission, section 5.11, pp 39 - 40.

<sup>24</sup> IPART, *Bulk Water Prices: an interim report*, October 1996, sections 5.3 and 5.5, pp 51 - 57.

### *Increased costs to implement water reforms*

DLWC is responsible for implementing the water reform package announced by the NSW Government in August 1997. DLWC estimates this will involve additional expenditure of \$59.9m between 1997/98 and 2001/02. Of this expenditure, \$12.345m will be spent in 1998/99. The Tribunal has not reviewed this estimate.

The planned water reforms will alter the conditions by which water users will be able to access water. This is a major change. The Tribunal does not consider it appropriate to include recovery of these costs in bulk water prices. This issue is discussed in section 7.2.1.

### **7.1.2 Efficiency of service delivery**

The Tribunal has stressed that water charges should recover only the costs of delivering water services in the most efficient way. The Tribunal asked DLWC to include consideration of efficiency indicators in its submissions to enable fair assessments of service quality, efficiency and reliability as required by s15 of the IPART Act.

Section 9 of DLWC's submission summaries DLWC's efforts to measure the efficiency and effectiveness of its resource management and water delivery services. Performance measurement tools for resource management are not well developed, being, perhaps of necessity, qualitative assessments of processes rather than outcomes.

However, performance measures of water delivery and customer services are more straightforward. DLWC's February 1997 submission includes a work plan to establish performance measures from 1 July 1997. DLWC's January 1998 submission includes a proposed set of productivity measures<sup>25</sup> which are still subject to development.

DLWC conducted a pilot benchmarking study of licensing and environmental review costs in the Sydney/South Coast, North Coast and Hunter regions, and concluded:

- costs exceed licence fees
- methods and costs of service delivery vary widely between regions
- staff require improved documentation for performing licensing duties
- achieving best practice will require significantly improved internal/external audits and policing.

While licensing costs constitute only 4 percent of total cost, the Tribunal notes that this pilot benchmarking study demonstrates divergent methods and gaps in service delivery. The outcome is consistent with anecdotal evidence that departmental mergers, restructures and a realignment of organisational focus have left DLWC with gaps in service delivery, institutional memory and key skills areas.

The Tribunal congratulates DLWC for its efforts to commence benchmarking. The pilot indicates that significant improvements in service delivery and efficiency may be achievable from internal benchmarking between regions or valleys. The establishment of State Water should facilitate benchmarking because service agreements will cover services delivered by internal and external service providers.

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<sup>25</sup> DLWC main submission, p 79.

If adequate financial information can be generated, State Water should be able to benchmark parts of its operations with Goulburn Murray Water in Victoria, Sydney Water Corporation's headworks business, and, if it is established, the MDBC's water business. The Tribunal believes benchmarking of this type will generate significant efficiency gains.

In this determination, the Tribunal has set maximum prices based on its estimate of the efficient levels of costs that should be incurred by DLWC. In estimating efficient costs, the Tribunal has assumed efficiency gains of 20 percent over the three years till 2000/01 (30 percent for licensing costs). While this is greater than DLWC's forecast rate of cost improvement, the Tribunal believes DLWC can achieve significant efficiency gains by:

- assessing whether it is necessary to have head offices in Sydney as well as Parramatta for an agency conducting rural and regional water supply and resource management activities
- exploring opportunities for rationalising the number and location of offices (including any remaining opportunities created by the amalgamation of the former departments of Soil Conservation, Conservation and Land Management, and Water Resources)<sup>26</sup>
- exploring opportunities to benchmark the operations of the various arms of State Water, and to benchmark State Water's performance against other bulk water businesses such as Goulburn Murray Water and the planned MDBC water business
- benchmarking regional water delivery and resource management services
- exploring opportunities to coordinate water quality monitoring and meter reading in conjunction with other state and local government agencies operating in catchments
- rationalising community consultation processes, in particular exploring opportunities to combine consultative structures with other environmental and resource management agencies.

### 7.1.3 Service contracts

The MDBC manages water resources within part of the Murray Darling Basin and delivers bulk water supply to New South Wales, Victoria and South Australia. To supply water to these states, the MDBC owns and/or operates dams and weirs on the Murray and Lower Darling rivers.<sup>27</sup> However, the majority of water-related services in the Murray system are performed under contract by DLWC or the Victorian Department of Conservation and Natural Resources.

Funding of the MDBC is covered by an agreement between the New South Wales, Victorian, South Australian and Federal governments. NSW pays approximately one third of the operating costs and one quarter of the capital costs.

In 1996/97, the NSW Government's contribution to the MDBC was \$16.978m. Total MDBC expenditure attributed to NSW in 1996/97 was \$17.451m. The additional funds were drawn from MDBC reserves contributed by NSW in previous years.

DLWC contends that \$11.7m of this expenditure was incurred to deliver bulk water or resource management services to licensed water users in the Murray, Lower Darling and Murrumbidgee regions. On the basis of the cost sharing ratios set out in Appendix 2, the

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<sup>26</sup> Murray Irrigation Limited, submission, p 32, argue that the Murray region is effectively run from two head offices at Deniliquin and Albury, and that these could be rationalised.

<sup>27</sup> Darling River structures are owned by DLWC and leased to the MDBC.

Tribunal concludes that \$2.589m of MDBC operating expenditure should be recovered from the Murray and Lower Darling regions.<sup>28</sup>

The MDBC's funding is under review with the aim of aligning each state's contributions with its usage of water. NSW may be required to increase its contribution to approximately 40 percent of the MDBC's costs (an increase of approximately \$2.5m per annum).<sup>29</sup>

The Dumaresq Barwon Border Rivers Commission (DBBRC) operates Glenlyon Dam on the Dumaresq River on behalf of New South Wales and Queensland and is funded in equal parts by those states. DLWC has manually coded these costs to products in its new financial reporting structure. In assessing full cost recovery for the border rivers the Tribunal has reviewed this coding and included a total of \$0.408m of costs paid by NSW to the DBBRC.

#### **7.1.4 Promotion of competition for the supply of services**

The Tribunal's interim report<sup>30</sup> advocates a move to regional service delivery, which would create opportunities for benchmarking between regions and contracting out.

DLWC indicates it contracts out 30-40 percent of daily maintenance on dams and weirs.<sup>31</sup> Yet, the bulk of DLWC's activities are not covered by internal service agreements or put to competitive tender.

DLWC or the Victorian Department of Conservation and Natural Resource carries out most maintenance and operational work on MDBC related assets. The Tribunal is concerned about the efficiency of service delivery, given that contracts are not subject to open tender. Irrigation business such as Murrumbidgee Irrigation, Murray Irrigation Limited and Goulburn Murray Water may be able to compete for some of the MDBC's work.

##### *State Water*

State Water has begun establishing service agreements with internal sections of DLWC and outside agencies such as the MDBC. When complete, these agreements should cover a significant proportion of costs currently reported as DLWC bulk water-related products.

As a new entity within DLWC, State Water must undertake an extensive work program to establish itself as a functioning water business. However, as State Water becomes more experienced in conducting its business, it may wish to engage external service providers for certain services currently provided by DLWC. The Tribunal encourages State Water and DLWC to ensure their service agreements will facilitate contestable service provision wherever practicable.

##### *New metering costs*

DLWC intends to phase in the monitoring of water usage on unregulated rivers and ground water where this is required for managing water resources. Various types of metering and other forms of usage monitoring are being trialed.<sup>32</sup> The Tribunal has supported increased

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<sup>28</sup> Comprising \$2.216m from the Murray Valley and \$0.373m from the Lower Darling.

<sup>29</sup> DLWC main submission, section 5.8, p 36.

<sup>30</sup> IPART, *Bulk Water Prices: an interim report*, October 1996.

<sup>31</sup> IPART, *Bulk Water Prices from 1 July 1997*, September 1997, p 14.

<sup>32</sup> DLWC presentation at the Tribunal's public hearing in Bega, 15 April 1998.

metering and monitoring of water usage.<sup>33</sup> This support was echoed in many submissions and at public hearings and regional meetings.

DLWC estimates the cost of installing a water meter (including purchase) as ranging from \$350 to \$4,050, depending on the type of meter.<sup>34</sup> Installation and maintenance of meters will be conducted by contractors after an open tender process managed by DLWC.

DLWC estimates the on-going costs of data management, audit, contract management, recalibration and maintenance at \$155 per meter per annum.<sup>35</sup> This estimate is based on meter readings being phoned or faxed in by water users and DLWC's conducting random audits and calibrating readings.

DLWC has assumed each metering officer will be able to manage 700 metering sites on unregulated rivers. DLWC argues this represents an efficient level of service delivery, being more than twice the ratio of metering staff to meters on regulated rivers and 40 percent higher than in the Hunter region where most water usage is calculated from electricity meter readings.

## 7.2 Consumer protection

- \* *the protection of consumers from abuses of monopoly power in terms of price, pricing policies and standard of services [S15(1)(b)]*
- \* *the effect on general price inflation over the medium term [S15(1)(d)]*
- \* *the social impacts of the determinations and recommendations [S15(1)(k)]*

### 7.2.1 Pricing policies

Many water user groups maintain they do not object to paying a fair price for water provided they are satisfied that DLWC is providing bulk water services efficiently, that the services provided represented value for money, and the charging system does not create any significant cross subsidies.

#### *Transparency and accountability*

The Tribunal has argued that bulk water customers can best be protected from any abuse of monopoly power by DLWC's transparently reporting costs and services, and developing effective mechanisms for accountability to customers where appropriate.

Some water user groups on regulated rivers report lower levels of accountability and transparency since the Tribunal's review began.<sup>36</sup> DLWC has abandoned the former River Operations Accounts and cost negotiations with River Management Boards. This is an issue raised particularly in submissions from irrigators in the Murray and Murrumbidgee regions.

In part this problem may be a result of DLWC's focus on implementing water reforms in consultation with a wider group of stakeholders. River management committees were established to help determine flow regimes for each river. However, none of the more

<sup>33</sup> IPART, *Bulk Water Prices from 1 July 1997*, September 1997.

<sup>34</sup> DLWC main submission, section 5.9 p 37.

<sup>35</sup> DLWC main submission, section 5.9 p 37 and Appendix 5 pp 102 - 104.

<sup>36</sup> Murrumbidgee River Management Board, p 3, Murray Irrigation Limited submission, p 5, MIA Council of Horticultural Associations, p 1, Murrumbidgee Irrigation, p 2.

recently established committees has been responsible for scrutinising the efficiency and effectiveness of DLWC's costs.

The regional information documents prepared by DLWC represent a significant advance in the transparent reporting of costs compared with previous submissions to the Tribunal. The documents link product costs to specified services and outputs within each region or valley.<sup>37</sup> The Tribunal urges DLWC to develop accountability mechanisms and formats for reporting costs and services to customers outside of submissions to the Tribunal.

A matter of further concern is DLWC's lack of effective protocols for dealing with customer complaints or bill inquiries. Billing is generally conducted 14 to 18 months in arrears,<sup>38</sup> long after services have been delivered. Bills are not accompanied by meaningful explanatory information. Customers regularly report to the Tribunal that their complaints have not been dealt with satisfactorily. The implementation of effective customer relations is particularly important, given the significant price rises identified by DLWC as necessary for full cost recovery. State Water intends to develop a customer service charter during 1998 to address service quality issues.

The Tribunal's last report<sup>39</sup> identifies a range of unfair licence classification issues in bulk water which required a full revision of the current system of licensing. In its main submission DLWC has addressed the very complex issues of license reforms for unregulated rivers and ground water.

Still, the immediate problems the Tribunal has identified on regulated rivers remain. These anomalies result in inconsistencies between similar water users and, in some cases, significant losses of potential revenue.<sup>40</sup>

### *Cost sharing*

To determine charges, the Tribunal must assess how the costs of particular activities should be shared by all those who benefit from those services and/or those contributing to particular environmental problems. The Tribunal has argued that costs which are incurred to generate joint benefits should be apportioned between water users and other beneficiaries on the basis of polluter or beneficiary pays principles.

DLWC proposes a matrix of ratios<sup>41</sup> to share the costs of bulk water services between licensed water users and government (on behalf of a range of currently non-chargeable beneficiaries or polluters).

Many submissions address the issue of how costs should be shared. A common view is that cost sharing ratios should be specific to each valley, as those contributing to pollution and those benefiting from DLWC's activities vary considerably between valleys.<sup>42</sup> This view was strongly reinforced in the Tribunal's regional workshops.

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<sup>37</sup> 74 percent of costs have been directly attributed to a particular IPART Cost Unit (ICU, usually a combination of a valley/region and water source). The remaining 26 percent of costs common to a number of ICUs have been apportioned on the basis of relative shares of directly attributable costs, DLWC main submission, pp 19 - 23.

<sup>38</sup> The exception being the Barwon region, which is billed quarterly.

<sup>39</sup> IPART, *Bulk Water Prices from 1 July 1997*, September 1997, p 15.

<sup>40</sup> For example, failure to charge for transmission losses within Murrumbidgee and Coleambally Irrigation Corporations.

<sup>41</sup> DLWC main submission, section 5.4, pp 25 - 29.

<sup>42</sup> See, for example, the submission by Murray Irrigation Limited, date March 1998, p 2.

The Tribunal has considered the application of polluter-pays and beneficiary-pays principles to the allocation of DLWC's bulk water costs and determined a matrix of cost sharing ratios which is set out in Appendix 2. Application of these cost sharing principles is complex and involves a significant degree of judgement.

Sharing costs on the basis of polluter-pays (or using DLWC's preferred term, "impactor-pays") depends on identifying the cause of resource degradation, and uses price to communicate the cost of pollution to the polluter.

Many current environmental problems in NSW are the result of decades of ecologically unsustainable land and water use and mismanagement by governments, DLWC's predecessors, irrigators and land holders. These problems are increased by an influx of pollutants to rivers, but their cause is much more complex.

Increased incidence of blue-green algae, loss of biodiversity in riverine ecosystems and even increased salinity, are in part due to regulation of river flows. Reduced river flows concentrate salinity and nutrient levels in ambient water, raise water temperature in weir pools and encourage the growth of algae. Lower water temperature and increased nutrient loads in dam releases water harms down-stream flora and fauna. These problems are caused by the interaction of natural conditions and unsustainable land and water uses. Previous Federal and State government policies encouraged these land and water uses.

The application of polluter-pays is restricted in bulk water services because price does not allocate water between users (other than by reallocating water through trading). Water users have been issued with licences (in effect, in perpetuity) which determine the relative distribution of water. For general security licences, DLWC announces annual allocations which limit the total usage of water in a valley to sustainable limits.

When implemented, river flow objectives will place further limitations on water use by controlling the timing of water use during the irrigation season. This will bring water use more in line with natural flow regimes in rivers. This will have cost implications for State Water, by making the operation of dams and filling of water orders more complex. It will also have cost implications for irrigators, who may have to invest in water storages, particularly on unregulated rivers to allow them to access water at permissible times and store it if it is not required at those times.

Sharing costs on the basis of beneficiary-pays is also complex because the benefits of river regulation and resource management are not traded on the market. Those benefiting from particular activities will depend on the hydrology and land use within each valley. For instance, land holders in flood plain areas benefit from flood mitigation provided by water storages. Riverside land holders and some recreation-related businesses benefit from the regulation of river levels and the maintenance of river quality (such as white water rafting companies).

The community benefits from its involvement in community based decision-making on resource management and DLWC's resolution of conflicts over access to land, water and vegetation resources. Current and future generations will enjoy longer term benefits from sustainable resource management (such as the preservation of biodiversity in riverine ecosystems).

Putting a value on these benefits is complex and involves difficult issues of judgement. Nevertheless, beneficiary-pays appears to be a more practical way to share most of the costs of bulk water services because there is a stronger temporal link between services and

benefits (notwithstanding valuation difficulties) than between pollution (or impacts) and services.

A submission by the NSW Irrigators' Council cites examples of cost sharing studies that determine irrigators should pay for 14-55 percent of bulk water delivery costs.<sup>43</sup> These studies are based on the estimated impacts of irrigated agriculture on regional economic activity. The Tribunal does not accept that regional development benefits should be included in valuing the direct benefits of bulk water services.<sup>44</sup>

The NSW Irrigators' Council also argues that the environment is a beneficiary of much of DLWC's resource management work. The Tribunal does not accept that the environment can be regarded as benefiting from river regulation. The Tribunal regards constraints on water availability and resource management activities as efforts to reduce the environmental costs of unsustainable land and water use.

Submissions from some water users groups<sup>45</sup> argue that costs should be shared in line with the proportion of river flow extracted for irrigation. The Tribunal does not accept this as a proxy for benefits realised from river regulation.

Some water users argue that prices should be reduced to reflect any environmentally beneficial activities they undertake.<sup>46</sup> While this would reward environmentally responsible behaviour, the Tribunal does not think any offset in prices is appropriate unless the behaviour in question significantly reduces DLWC's costs.

The following table, Table 7.3 compares DLWC's and the Tribunal's cost sharing ratios and calculates the impact of these different assumptions on the level of costs to be recovered from water users. Information in Appendix 2 explains DLWC's bulk water related products, and the rationale for the Tribunal's cost sharing ratios.

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<sup>43</sup> NSW Irrigators' Council submission citing a study commissioned by the Alberta Irrigation Projects Association and a second study by the MDBC regarding Torrumbarry Weir.

<sup>44</sup> See also submission by the Ricegrowers' Association of Australia, based on assessments of regional income and employment multipliers, p 4.

<sup>45</sup> See, for example, Murrumbidgee River Management Board, Gwydir Valley Irrigators, Namoi Valley Irrigators.

<sup>46</sup> See, for example, the submission of Murray Irrigation Limited, p 3.

**Table 7.3 Comparison of proposed DLWC and Tribunal cost sharing matrices**

	<b>DLWC Product</b>	<b>96-97 Actual Expenditure</b>	<b>DLWC Ratio</b>	<b>IPART Ratio</b>	<b>DLWC proposed user share</b>	<b>IPART user share</b>	<b>Difference</b>
PA1	Surface Water Database	10,519,502	70%	50%	7,363,651	5,259,751	2,103,900
PA2	Groundwater Database	2,108,118	70%	70%	1,475,683	1,475,683	-
PA3	Other Water Databases	1,832,205	50%	0%	916,103	-	916,103
PA4	Water Information Products	838,486	50%	0%	419,243	-	419,243
PB1	Surface Water Allocation Strategies	2,918,092	90%	50%	2,626,283	1,459,046	1,167,237
PB3	Groundwater Allocation Strategies	299,785	90%	70%	269,807	209,850	59,957
PC1	Rural Water Supply Strategies	313,259	90%	90%	281,933	281,933	-
PC2	Rural Water Operations	9,868,789	90%	90%	8,881,910	8,881,910	-
PC3	Flood Operations	982,201	50%	50%	491,101	491,101	-
PC4	Rural Water Infrastructure	16,694,275	90%	90%	15,024,847	15,024,847	-
PD1	River Quality/Flow Reforms	4,408,101	70%	0%	3,085,671	-	3,085,671
PD2	Blue Green Algae Strategies	5,364,073	50%	50%	2,682,037	2,682,037	-
PD3	River Salinity Strategies	1,414,856	50%	50%	707,428	707,428	-
PD5	Groundwater Strategies	2,647,559	70%	70%	1,853,291	1,853,291	-
PD6	Wetland Strategies	1,141,701	70%	0%	799,191	-	799,191
PD7	Water Industry Strategies	2,461,906	30%	0%	738,572	-	738,572
RB2	Environmental Planning Controls	1,056,822	20%	0%	211,364	-	211,364
RC1	Integrated Natural Resource Mgt Framework	2,814,094	30%	0%	844,228	-	844,228
RC2	Catchment Strategies	8,537,639	20%	0%	1,707,528	-	1,707,528
RC3	(Major) Community Education Campaigns	3,180,262	10%	0%	318,026	-	318,026
	<b>Total</b>	<b>79,401,725</b>			<b>50,697,895</b>	<b>38,326,876</b>	<b>12,371,020</b>

1. Licensing costs of \$4,579,240 (\$3,474,063 for surface water and \$1,105,177 for ground water licensing) and asset annuity costs of \$10,153,000 (\$8,153,000 for DLWC and \$2,000,000 for the MDBC) are excluded from the above table.
2. 100 percent of licensing costs and 90 percent of asset annuity costs have been allocated to water users by DLWC and the Tribunal.

There is likely to be ongoing debate over the correct sharing of costs between water users and others. The Tribunal will review how costs are shared during the next pricing review in 2000/01.

Some of DLWC's product may combine non-recoverable activities with what would otherwise be recoverable services. Refining product definitions may allow more services to be recovered in water prices.

Further, when State Water is subject to a water access licence, it may be required to do, or pay for, certain resource management activities. Examples might include water quality monitoring and works relating to environmental impacts of water extraction and river regulation.

The Tribunal encourage DLWC and stakeholders to negotiate services and cost recovery on a valley by valley basis in future years. In particular, the Tribunal encourage DLWC to negotiate services with large customers and water authorities. This might be undertaken by establishing liaison committees in a manner similar to that established with Hunter Water Corporation.

### *Cost sharing of water reform implementation costs*

DLWC anticipates spending an additional \$12.345m in 1998/99 to implement water reforms. It argues that some proportion of these additional costs should be recovered from water users.

The following Table 7.4 shows how this planned expenditure has been budgeted across DLWC's bulk water related products. DLWC proposes that \$7.761m (column 4) be recovered from water users (\$6.654m in water charges and \$1.107m in licence charges). If the Tribunal's matrix of cost sharing ratios was applied to the planned expenditure, \$2.656m would be recovered from water users (\$1.549m in water charges and \$1.107m in licence charges).

**Table 7.4 Cost sharing of water reform implementation costs (\$000s)**

Product	Description	Planned expenditure	DLWC proposed user share	IPART user share
PA1	Surface Water Database	80	56	40
PA3	Other Water Databases	2,054	1,027	0
PA4	Water Information Products	1,000	500	0
PB1	Surface Water Allocation Strategies	1,358	1,223	679
PD1	River Quality/Flow Reforms	3,510	2,457	0
PD5	Groundwater Strategies	1,185	830	830
PD6	Wetland Strategies	100	70	0
PD7	Water Industry Strategies	590	177	0
RC1	Integrated Natural Resource Mgt Framework	830	249	0
RC2	Catchment Strategies	130	26	0
RC3	(Major) Community Education Campaigns	400	40	0
<i>Subtotal of products related to water charges</i>		<i>11,238</i>	<i>6,654</i>	<i>1,549</i>
PB4	Ground water licensing	700	700	700
PB2	Surface water licensing	407	407	407
<i>Subtotal of products related to licensing charges</i>		<i>1,107</i>	<i>1,107</i>	<i>1,107</i>
<b>Total</b>		<b>12,345</b>	<b>7,761</b>	<b>2,656</b>

However, the Tribunal think that none of the proposed water reform implementation costs should be recovered from water users over the coming two years. DLWC's submission lists key outputs of its water reform agenda as:

- more water for the environment and healthier ecosystems
- community confidence in its investment decisions
- efficient water operations
- continuous improvement by government in water management
- community involvement in and ownership of water management decisions which affect their future
- better recognition, understanding and amelioration of social and economic impacts of change.<sup>47</sup>

The primary beneficiary of water reform is the general community (represented by DLWC and other natural resource management agencies), since the community wishes to advance policies to promote ecologically sustainable development in NSW catchments.

However, if the water reform agenda raises environmental obligations (thus raising bulk water operating costs), these should be recovered in bulk water prices. This should be considered in the next review in 2000/01.

<sup>47</sup> DLWC main submission, section 5.7, pp 35 - 36.

This approach is consistent with COAG's strategic framework for the water industry (as interpreted in the Expert Group report). The COAG Expert Group argues that one-off costs of resource management initiatives should be met by the beneficiaries of that change, while water users should pay for any on-going change in operating and routine resource management and monitoring costs from which they benefit.<sup>48</sup>

### 7.2.2 Service standards

The Tribunal has previously noted that one of the strongest messages from bulk water users in submissions and public hearings is that the DLWC does not have a clear customer service focus.<sup>49</sup> This is supported in recent submissions.

The creation of State Water should sharpen DLWC's focus on how best to provide services to bulk water customers. However, the Tribunal notes that DLWC's stated purpose in creating State Water are to:

- institutionally separate operational functions to comply with COAG requirements
- ring fence bulk water costs and revenues to comply with the Tribunal requirements
- increase confidence levels in DLWC's estimates of asset costs to ensure that the Tribunal will allow these costs to be recovered in prices
- enhance operational efficiencies consistent with DLWC resource management plans.<sup>50</sup>

State Water needs to ensure that customer satisfaction is recognised as a business objective alongside compliance with the requirements of governments and external regulators.

### 7.2.3 Impact of determination on the cost of living

The maximum prices set in this determination will not have a significant impact on the general level of inflation. Although the price of bulk water is an input to the cost of irrigated agricultural production, the proportion of total variable costs constituted by that cost is typically small. As a proportion of total variable costs, DLWC's bulk water charges vary from as low as 1-2 percent for a large cotton farm, to 5-7 percent for a large rice farm.<sup>51</sup> By contrast, changes in the price levels of key inputs such as labour, fuel, machinery, interest and chemicals would have a far greater impact on farm costs.

The Tribunal acknowledges that bulk water costs are a more significant proportion of the total variable costs of smaller farmers, but the impact on general levels of inflation is again likely to be small.

### 7.2.4 Social impacts

Since 1995, NSW has implemented far reaching water reforms which have fundamentally altered the conditions on which licensed water users will access water. DLWC has a clear focus on resource management. Pricing reform has proceeded in an environment of great uncertainty over the share of water available for irrigation.

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<sup>48</sup> *Report of the Expert Group on Asset Valuation Methods and Cost Recovery Definitions for the Water Industry*, February 1995, paragraphs 8.10 and 8.11, p 45.

<sup>49</sup> IPART, *Bulk Water Prices from 1 July 1997*, September 1997.

<sup>50</sup> DLWC main submission, section 4.4 Key Directions for Operations, pp 15 - 16.

<sup>51</sup> See IPART, *Bulk Water Prices: an interim report*, October 1996, p 116 which quotes figures which include on farm pumping costs and are therefore higher.

The extent of this reform has led to significant concern among rural communities where regional economies are in part dependent on irrigated crops. So far, the pace of reform has been slow due to inherent difficulties in the reforms and the need to consult widely with stakeholders.

Notwithstanding this concern, the Tribunal is convinced there will be no significant social impact from the maximum prices set in this determination. Bulk water prices are too small a proportion of most irrigation businesses' costs to have any significant economic, and thus social, impacts. The Tribunal has calculated typical bill impacts of the prices set in this determination. These are shown in tables in Appendix 3.

The NSW Farmers Association argues that the price rises proposed by DLWC are too large to be introduced in three years, and that a seven year phasing in period should be set for any increases.<sup>52</sup> The Tribunal has limited increases in prices to around 20 percent per annum to allow water users time to adjust the operation of their business, if necessary. The NSW Farmers Association makes the important point that it is access to water, rather than its price, that is crucial to the viability of most farms.<sup>53</sup>

A great number of submissions from water users in the Tamworth area argue that DLWC's proposed maximum prices will have significant economic and social impacts. Farming businesses in the Peel Valley are dominated by low value crops such as lucerne hay. The Tribunal does not believe that maximum prices set in this determination will have a significant economic or social impact in the Tamworth region.

A discussion paper has recently been released by a NSW Government appointed Independent Advisory Committee on the Socio-Economic Impact of Water Reform. The discussion paper provides guidelines for assessing the socio-economic impact of water policies. DLWC should apply these guidelines when assessing the impact of its proposals for 2000/01.

### 7.3 Financial viability

- \* *the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of NSW [S15(1)(c)]*
- \* *the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets [S15(1)(g)]*

DLWC does not recover its full bulk water operating costs from user charges. Most of its funding is obtained from Government contributions.

The creation of State Water within DLWC should enable better financial accountability as it is expected that State Water will ultimately be financially viable in its own right. However, the Tribunal is concerned that other parts of DLWC, with which State Water may develop service agreements, must also operate efficiently. Otherwise, inefficient costs incurred elsewhere in DLWC may be passed on to water users.

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<sup>52</sup> NSW Farmers submission, p 2.

<sup>53</sup> NSW Farmers submission, p 3.

The maximum prices set in this determination will reduce the government subsidy for bulk water services. However, the Tribunal thinks there is also scope for reducing the cost of bulk water services borne by government by reducing service costs to efficient levels.

The Tribunal has argued that a return on assets should be charged on new investments only. Charges of existing assets should be limited to the costs of maintaining service capacity. Asset renewal expenditure has been included in maximum prices set for 1998/99 and 1999/00. This is discussed in more detail in section 7.1.1 above.

### 7.4 Environmental issues

- \* *the need to maintain ecologically sustainable development by appropriate pricing policies that take account of all the feasible options available to protect the environment [S15(1)(f)]*
- \* *considerations of demand management and least cost planning [S15(1)(j)]*

#### 7.4.1 Ecologically sustainable development (ESD)

The Tribunal is of the view that achieving progress towards ESD requires the development of:

- an adequate understanding of the status of resources, in order to monitor progress towards ecological sustainability and to provide early recognition of any indication of its deterioration and any other associated problems
- a working knowledge of the various interrelationships between resources, to develop response options that address any problems identified
- appropriate mechanisms to encourage direct relevant human activities which value and promote the resource and minimise any future deterioration.

Market mechanisms are most effective where there is good knowledge of the resource and an appropriate regime of resource ownership. In such circumstances, prices reflect the full cost of the resource, including the cost of environmental externalities.

Much resource degradation has resulted from a complex mix of inappropriate actions over a long period, rather than from a specific instance of substantial malpractice. With incomplete knowledge, the most effective remediation for these problems requires a management approach to rural production that places increased emphasis on ecological sustainability.

The appropriate role for water pricing is to reflect the costs involved. A two-part tariff achieves this by recovering marginal costs through a charge on water usage and recovering fixed costs through a fixed charge. For cases where capacity is usually expanded in large, expensive increments, it is most appropriate that long run marginal costs be considered when usage charges are assessed.

The difficulties of quantifying the costs of environmental damage are well understood. It is broadly accepted that the extent of resource degradation is related to water usage and river regulation. This suggests that some proxy for the cost of environmental externalities should be included within the usage charge. This determination has continued the focus on usage charges.

#### 7.4.2 Demand management and least cost planning

The usage component of the two-part tariff is one method of providing incentives to use water more efficiently. In the case of bulk water, however, the effectiveness of this incentive is influenced by other factors.

In the northern regions, where water is the limiting resource and provides very high returns, demand for water is relatively inelastic. Irrigators will carefully use as much water as they can obtain to maximise their returns.

In the southern regions, water costs represent a more significant proportion of total costs. While a wider range of crops is possible, substantial start up costs are required for some of the most water intensive crops such as rice.

In each case, price plays a supplementary role in demand management and administrative decisions or planning instruments are likely to be much more directly effective. The Tribunal recognises that numerous on-farm irrigation costs, such as pumping, are usage based. On-farm costs can often be many times greater than bulk water costs and provide better conservation incentives than bulk prices in any format. Clearly, the ability to trade water provides another demand management incentive.

### 7.5 Standards

\* *standards of quality, reliability and safety of the services concerned [S15(1)(l)]*

DLWC effectively sets standards for the use of land, water and vegetation resources when it develops resource management policies. DLWC also implements strategies (for unregulated rivers, ground water and regulated rivers) and conducts a business (for regulated rivers) to control use of the resource within these policy standards.

There are inherent tensions between these tasks. There can be pressure to compromise environmental standards where certain strategies for the use of a resource have politically unpopular or expensive consequences.

For example, many submissions claim land and water resources in coastal catchments are being degraded, in part because of riparian water use. While use of water by riparian land holders is growing, it is not a new problem. However, licensing and control of riparian water use remains a politically difficult option.

Where DLWC wishes to recover costs from customers, tension between roles can develop into conflicts of interest. Some of DLWC's dams release water which may be sufficiently cold, deoxygenated or nutrient rich to breach the *Clean Waters Act*. DLWC attributes many river health problems to its own regulation of rivers.<sup>54</sup>

DLWC plans to address these problems by limiting water use, altering river regulation and upgrading infrastructure.<sup>55</sup> These strategies will increase the cost of running State Water's water delivery business and potentially raise prices for customers. In conducting its bulk water business, State Water must carefully scrutinise the standards which external regulators (including DLWC) seek to impose on the business.

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<sup>54</sup> DLWC main submission, section 3.3, p 11.

<sup>55</sup> Elements of the NSW Government's recent water reform agenda are summarised in DLWC's main submission, section 4.1, pp 13 - 14.

Creating State Water to conduct DLWC's water delivery business will begin to separate standard setting from service delivery. The Tribunal understands that DLWC plans to contract State Water to deliver some resource management strategies once DLWC has completed a comprehensive resource management plan.

Existing and potential standards are likely to be key cost drivers of State Water's bulk water business and DLWC's resource management strategies. DLWC is currently working on three instruments which will define State Water's business operating environment:

- an operating authority
- a resource access authority
- a statement of corporate intent.

DLWC is subject to dam safety guidelines set by the Australian National Committee on Large Dams.<sup>56</sup> State Water will delay planned capital expenditure to meet a recent upgrading of these standards until after June 2000, when it will have completed risk assessment of its dams as part of the Total Asset Management Plan.<sup>57</sup>

Other new standards likely to increase DLWC's resource management costs and State Water's operating costs are the NSW Government's river flow and water quality objectives and the MDBC cap on water extractions.

The Tribunal believes that the costs of complying with the new environmental standards are legitimate costs of doing business where they are caused by water usage, and should be paid for, in part, by licensed water users.

## **8 OTHER ISSUES CONSIDERED BY THE TRIBUNAL**

### **8.1 Council of Australian Governments (COAG) water reform**

COAG's reform agenda is an important consideration in this review of bulk water prices. However, the first priority for all the Tribunal's pricing determinations is to ensure satisfaction of section 15 of the Tribunal's Act. Most of the COAG water principles are consistent with the Tribunal's section 15 requirements.

COAG commitments are:

- full cost recovery including a positive rate of return for all urban water authorities (including non-metropolitan authorities) by 1998
- usage-based pricing
- full cost recovery including, where practicable, a positive rate of return for all rural water by 2001
- removal of cross-subsidies
- transparency of any remaining water subsidies.

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<sup>56</sup> These guidelines specify the appropriate peak maximum flood that dams should be designed to withstand, for an assessed level of risk. The greater the consequences of failure for a dam the higher the assessed risk.

<sup>57</sup> DLWC has negotiated with the Dam Safety Committee to delay the upgrading work on all storages except Keepit Dam in the Namoi valley which can safely pass on 45 percent of the probably maximum flood. State Water intend to proceed with upgrading of Keepit Dam prior to June 2000. DLWC main submission, Appendix 3, p 94.

The National Competition Council (NCC) will review each state's (and territory's) water reform for assessment of the second and third tranche payments by the Commonwealth government under the National Competition Policy.

The structure and level of prices will be key inputs into that review. The Tribunal's 1997/98 determination introduced a two part tariff for metered water supply with an emphasis on consumption based pricing. This determination maintains that approach and addresses more clearly the question of full cost recovery.

There has been significant under recovery of costs for rural water. Determining the extent of under recovery of costs has been clouded by definitional and measurement problems. At the February 1998 meeting of the Agriculture and Resource Management Council of Australia and New Zealand full cost recovery guidelines were adopted. These are yet to be endorsed by COAG, but the NCC has indicated that it is prepared in principle to use the guidelines as the basis for assessment of full cost recovery.

The guidelines suggest that full cost recovery be defined as a range and not as a single figure. The floor of that range is defined as:

... to be viable a water business should recover, at least the operational, maintenance and administrative costs, externalities ... and make provision for future asset refurbishment/replacement.

The Tribunal has attempted to establish what this means for NSW bulk water prices and introduce an appropriate transition path. On the basis of the Tribunal's determination, full cost recovery (under the definition provided above) will not be achieved in all regions by the end of the determination period (30 June 2000). However, considerable progress towards that end will have been made and the extent of remaining under recovery of costs made transparent.

Full cost recovery is unlikely to be achieved in the Hunter, North Coast and South Coast regions because of excess dam capacity. Prices to fully recover costs in these regions would be far greater than that payable by any irrigation business.

Table 8.1 projects DLWC's progress towards full cost recovery by the deadline of 1 July 2001.

**Table 8.1 Summary of shortfall from full cost recovery (1996/97 \$m)**

Water source	1997/98	1998/99	1999/00	2000/01 <sup>2</sup>
Regulated rivers <sup>3</sup>	18.5	12.1	7.0	3.0
Unregulated rivers	1.2	0.7	0.3	0.0
Ground water	2.1	1.5	1.3	1.0
Licensing <sup>1</sup>	3.1	2.1	2.0	1.8
<b>Total</b>	<b>24.9</b>	<b>16.4</b>	<b>10.6</b>	<b>5.8</b>

1. The Tribunal's assessment of state wide efficient licensing costs is \$3.3m, actual costs are \$4.6m, licensing revenue is \$1.5m.
2. Figures for 2000/01 are shown for illustrative purposes, on the assumption that price increases in 1998/99 and 1999/00 are continued in 2000/01.
3. Shortfall for regulated rivers is based on DLWC's estimated long term usage.

Table 8.2 projects progress towards full costs recovery for each regulated river valley. Tables 8.3 and 8.4 project progress to full costs recovery for unregulated rivers and ground water respectively. Tables 8.2, 8.3 and 8.4 exclude statewide licensing costs of \$4.7m (and licensing revenue \$1.5m).

**Table 8.2 Regulated rivers' progress to full cost recovery (1996/97 \$m)**

Valley	1998/99	1999/00	Shortfall at 2000/01 (\$m)
Gwydir <sup>1</sup>	✓		
Border <sup>1</sup>	✓		
Namoi			0.3
Macquarie			0.3
Lachlan			✓
Murrumbidgee			✓
Murray			✓
Hunter			1.7
North Coast			0.3
South Coast			0.4
<b>Total shortfall</b>			<b>3.0</b>

1. The Gwydir and Border rivers are at full cost recovery in 1997/98.
2. Shortfall at 1999/00 is \$5.7m.

**Table 8.3 Unregulated rivers' progress to full cost recovery (1996/97 \$m)**

Region	1998/99	1999/00	Shortfall at 2000/01 (\$m)
Barwon		✓	
Intersecting streams			0.1
Central West			0.2
Barwon Darling			0.4
Murrumbidgee			✓
Murray <sup>1</sup>	✓		
Hunter	✓		
North Coast			0.2
South Coast			0.1
<b>Total shortfall</b>			<b>1.0<sup>3</sup></b>

1. The Murray region is at full cost recovery in 1997/98.
2. Shortfall at 1999/00 is \$0.1m.
3. The shortfall of \$1m shown in Table 8.3 is offset by over recovery of \$1m from Hunter Water Corporation and Sydney Water Corporation, resulting in no shortfall on unregulated rivers in 2000/01 as shown in Table 8.1.

**Table 8.4 Ground water progress to full cost recovery (1996/97 \$m)**

Valley	1998/99	1999/00	Shortfall at 2000/01 (\$m)
Barwon	✓		
Far West			0.2
Central West			✓
Murrumbidgee (1996/97)	✓		✓
Murray			✓
Hunter			0.1
North Coast			0.1
South Coast			0.6
<b>Total shortfall</b>			<b>1.0</b>

1. The Barwon and Murrumbidgee regions are at full cost recovery in 1997/98.
2. Shortfall at 1999/00 is \$1.1m.

## 8.2 Price comparisons with other states

Clause 3 (d) (iv) of COAG's water resource policy states:

Where trading in water could occur across state borders, that pricing and asset valuation arrangements should be consistent.

Victoria and the MDBC have argued that if New South Wales and Victoria charge different prices for water supplied to Murray River irrigators, this will act as a barrier to trade between NSW and Victoria.

### 8.2.1 MDBC costs for 1997/98 and 1998/99

For 1997/98, the MDBC will charge NSW for the full actual cost of activities based on the current sharing arrangements ie Investigations, Construction and Administration – 25 percent and Operations and Maintenance – 33 percent.

For 1998/99, it is anticipated that new sharing arrangements will be applied for the full actual costs of activities, with NSW likely to pay about 40 percent of this cost. It is expected that the Commonwealth will continue to provide its share of costs.

Beyond 1998/99, the MDBC Water Business proposes to introduce a renewals annuity which will cover the costs associated with its existing Investigation and Construction program (for 1996/97 the total cost for this activity was \$35.8m). The nature of this Renewals Annuity has yet to be determined. The Tribunal has included an amount of \$2m in anticipation of this annuity.

### 8.2.2 Price comparisons

Bulk water prices should reflect the costs of supply, which may vary between valleys. There are considerable differences in costs of supply, and hence prices, between regulated rivers in NSW.

Goulburn Murray Water's ringfenced bulk water business supplies Victorian irrigators on the Murray system. The following table, Table 8.5, compares the effective price paid by irrigators in Victoria with the effective price for the Murray system in NSW, which should achieve full costs recovery in 2000/01.

**Table 8.5 NSW & VIC bulk water prices for the Murray River (1997/98 \$m)**

	Victoria		NSW
	Goulburn Murray Water	DLWC proposal	IPART determination
Total Expenditure	8.71	14.683	9.544
Water Use (million ML)	1.546	1.938	
Full cost recovery price (\$/ML)	<b>5.63</b>	<b>7.58</b>	<b>4.92</b>
Equivalent NSW price at Victorian water usage (\$/ML)			6.17

1. NSW Murray expenditure shown is the Tribunal's estimate of efficient costs assuming 20 percent efficiency gains over the three years to 2000/01.
2. Victorian usage for the Murray system is measured by volume at the river off-take. It includes all usages and losses.
3. Victorian prices are quoted on a rolling five year average, based on current year actual costs and estimates for the next four years. The 1997/98 price on the five year average basis is \$5.39/ML.
4. NSW Murray price is the Tribunal's estimate of the full cost recovery price proposed for 2000/01. NSW Murray price in 1997/98 is \$2.90/ML assuming water usage of 100 percent of licence entitlement.

The Tribunal has set two part tariffs for 1998/99 and 1999/00 based on a projected path to reach full cost recovery in the NSW Murray system by 2000/01. Effective prices for the Murray region over this period are shown in the following table, Table 8.6. Actual tariffs are shown in Table 4.3.

**Table 8.6 Effective prices in the NSW Murray region**

Year	97/98	98/99	99/00	00/01 <sup>2</sup>
Effective price <sup>1</sup> (\$/ML)	3.30	4.06	4.86	4.92

1. Effective price shown is a weighted average of high and low security irrigation prices assuming long term average usage.
2. 2000/01 effective price shown is based on projections.

Table 8.7 compares effective prices per ML paid in Queensland's southern rivers and the New South Wales Border Rivers.

**Table 8.7 Price comparison NSW and Qld bulk water (1997/98)**

Year	97/98	98/99	99/00
QLD effective price <sup>4</sup> (\$/ML)	12.55		
NSW effective price (\$/ML)	9.50 (19.37) <sup>2</sup>	9.25 (19.61) <sup>2</sup>	9.25 (20.13) <sup>2</sup>

1. Effective prices for QLD and NSW are based on an assumed allocation of 50 percent of licence entitlement.
2. NSW effective price quoted in brackets includes the Pindari dam levy of \$9.87/ML of usage in 1997/98, which escalates at 5 percent per annum.
3. The Pindari Dam levy is paid by those NSW irrigators on the Border rivers which use water from licence entitlements held in the Pindari Dam.
4. Forecast prices for QLD are not available.

## 9 THE STRUCTURE OF BULK WATER PRICES

An ideal pricing structure should be cost reflective, simple and equitable. The pricing structure should provide the correct incentives for DLWC to supply water, and for water users to conserve water where possible to avoid potential environmental damage associated with water extraction.

In early June 1998 the Tribunal asked DLWC to model tariffs for unregulated rivers and ground water to meet certain revenue targets. The prices in this determination have been set based on that modelling. The new prices for 1998/99 and 1999/00 are contained in the Pricing Schedule at the end of this determination.

### 9.1 Regulated rivers

1997/98 bulk water prices on regulated rivers are two-part tariffs, with fixed charges on licence entitlements and variable charges on metered water usage. Prices vary between regions. High security licence holders pay region-specific premiums based on fixed charges.

#### 9.1.1 General security

In its 1997/98 determination, the Tribunal removed the minimum annual charge system and introduced two-part tariffs on regulated rivers to provide better signals to conserve water and a fairer pricing system. The Tribunal set fixed and usage prices to reflect the proportions of revenue raised by fixed and variable charges in the minimum annual charge system.

The proportion of revenue raised by usage charges in each valley, assuming long term average usage of 5.154 million ML, is shown in Table 9.1. State wide, these prices should recover 68 percent of revenue from fixed charges and 32 percent from usage charges.

**Table 9.1 Revenue raised by usage charges in 1997/98**

Valley	Long term average usage (000 ML)	Usage revenue as a proportion of total revenue (%)
Murray	1,960	23
Murrumbidgee	1,600	18
Lachlan	240	31
Macquarie	410	45
Namoi (incl Peel)	240	46
Gwydir	360	44
Border	250	52
Hunter	90	37
Toonumbar	0.3	3
Brogo	4	15
<b>Total valleys</b>	<b>5,154.3</b>	<b>32</b>

DLWC proposed restructuring tariffs to raise 70 percent of revenue from fixed charges in each regulated valley. In northern valleys this would greatly reduce bills to large users and greatly increase bills to smaller users. In southern valleys this proposal would have the opposite effect.

In the absence of a detailed study of fixed and variable costs in each region, the Tribunal is not convinced of the need to alter the 1997/98 balance of fixed and usage charges. The aggregate balance is in line with DLWC's broad estimate of the proportions of its costs which are fixed and those that vary with water use. Maintaining the existing balance of fixed and usage charges will ensure any price rise affects all regulated water users equally (assuming they use similar water usage between years).

The Tribunal has set valley specific charges, except that common charges have been maintained in the following cases:

- between the Peel and Namoi valleys
- within the Hunter region
- between the Murray and Lower Darling rivers.

DLWC's allocation of costs between the Peel and Namoi, and within valleys in the Hunter is not sufficiently clear to allow valley-specific tariffs. However, cost information does indicate that cost recovery is proportionately greater in the Namoi valley than in the Peel. The Peel and Hunter valleys also have large high security water usage, the correct pricing of which may significantly reduce the scale of future price rises for general security water. The Murray and Lower Darling rivers are operated as one regulated system.

State Water should complete a detailed review of its costs prior to the next price review in 2000/01, to determine whether fixed and usage components of tariffs should be revised to be more cost reflective.

### 9.1.2 High security water

High security licence holders are guaranteed to receive 100 percent of their licence entitlements in all but the worst drought years. This insurance function justifies a price premium to reflect the additional cost of supplying high security water.

Relative costs of supply vary between valleys, generally in line with the relative security of supply of general and high security water (as determined by climate, hydrology, usage patterns and DLWC's water sharing decisions).

In moving high security price premiums from variable charges to fixed charges in 1997/98, the Tribunal attempted to maintain the pre-existing size of premiums. 1997/98 premiums on fixed charges, shown in Table 9.2, range from 5 percent in the Murrumbidgee to 50 percent in the northern valleys of the Barwon region.<sup>58</sup>

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<sup>58</sup> The effective price premium on water used by high security water users is lower than that shown in the table because high and low security water users on a regulated river pay the same usage price for each ML of water usage. See DLWC main submission, section 7.4, Table 7.1, p 60.

**Table 9.2 High security premiums on fixed entitlement charges**

Valley	High security fixed charge as a proportion of low security fixed charge (%)
Murray	110
Murrumbidgee	105
Lachlan	150
Macquarie	130
Namoi (incl Peel)	150
Gwydir	150
Border	150
Hunter	140
Toonumbar	130
Brogo	130

Hydrologic modelling reported in DLWC's January 1997 bulk water submission suggests premiums should be much higher in some valleys. This is particularly so for the Peel and Lower Darling rivers. Recently announced river flow objectives have further reduced the general security of supply in most valleys.

However, the Tribunal is reluctant to change existing premiums without a detailed analysis of additional costs incurred by DLWC and the opportunity for stakeholders to comment on this analysis. The Tribunal has calculated high security premiums for 1998/99 and 1999/00 by maintaining existing proportional increases on general security fixed charges.

For the next price review in 2000/01, State Water should assess the cost-reflectivity of high security premiums by:

- updating existing modelling of hydrologic equivalence between high and general security in each valley
- analysing river regulation costs to isolate additional costs of supply.

Additional costs of supply are likely to include capital expenditure (maintenance and refurbishment of storage capacity), operating costs (storage operation and river regulation during drought years) and resource management (complexity of release sharing decisions, conflict over access to resources, and complexity in defining and enforcing property rights and water trading).

The MIA Council of Horticulture Associations' submission encloses a letter from DLWC indicating that the level of security of so-called "high security" irrigation water is regarded by DLWC as being of a lower, but unspecified, level of security than town water supply, stock and domestic and industrial water.<sup>59</sup> The MIA Council argues this should be reflected in relative prices. The Tribunal urges DLWC to work with water users to formalise the definitions of all licensed water users' rights to access water. Uncertainty regarding these rights reduces the suitability of licence classification as a basis for charges.

<sup>59</sup> MIA Council of Horticulture Associations, submission.

*Industrial users*

For the 1995/96 season, the Government introduced differential charging for industrial users. Industry charges apply to activities such as coal washeries, quarries and abattoirs. On average, the total industrial charge of \$10/ML is significantly higher than an equivalent high security invoice.

For 1998/99 and 1999/00, the Tribunal has reduced the industrial charge in all valleys to the high security two part tariff. The Tribunal has amended its 1997/98 determination in the same way. DLWC should credit any payment already made against future bills.

A major problem relating to the industry charge has been due to incorrect classification of some users as industry (eg golf courses, council parks) when they are recreational. This problem is removed by the current determination.

**9.1.3 Wholesale customers**

Prior to price regulation by the Tribunal, DLWC had granted wholesale discounts, primarily on metering charges. Metering fees were a usage charge, based on minimum assumed usage.

In 1997/98, the Tribunal set maximum prices to preserve existing wholesale discounts in recognition of cost differentials, but moved all discounts to a fixed charge on entitlements. This is likely to be more cost reflective. It also allows all water users in a regulated valley to access water at the same usage price. The Tribunal set lump sum fixed charges for each wholesale customer receiving a discount and per ML fixed charges for all other regulated water users.

Table 9.3 shows the range of discounts enjoyed by certain wholesale customers in 1997/98. Wholesale customer's lump sum fixed charges have been converted to a per ML (of licence entitlement) basis to allow comparison with retail customers.

**Table 9.3 Wholesale discount on fixed charges in 1997/98**

<b>Valley</b>	<b>Wholesale fixed charge per ML as a proportion of low security fixed charge (%)</b>
Murray Irrigation Limited	60
Western Murray Irrigation	81
West Corurgan	65
Moira Irrigation Scheme	70
Eagle Creek Scheme	76
Murrumbidgee Irrigation Corporation	72
Coleambally Irrigation Corporation	68
Jemalong Irrigation Limited	74

In its latest submission, DLWC proposes removing the wholesale discounts on equity grounds.<sup>60</sup>

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<sup>60</sup> DLWC main submission, section 7.4, p 61, and in each Regional Information Document.

The Tribunal maintains there are significant cost differentials in supplying water to wholesale customers, and these should be reflected in prices. Considerable information to support this is contained in submissions from wholesale customers, such as Murray Irrigation Limited.<sup>61</sup> However, the existing pattern of discounts is not cost reflective, as it is enjoyed by only some wholesale customers.

Irrigation areas and districts use approximately 60 percent of the total water used on regulated rivers in NSW. These wholesale customers take bulk allocations from DLWC and resell that water to their members.

The costs incurred by DLWC to deliver water to an area and district are likely to be lower on average than the costs of delivering water to a river pumper. This is because the area and district aggregates water orders, billing and all interactions with DLWC.

State Water has the opportunity to manage water usage patterns by negotiating with wholesale customers to optimise the operation of its river regulation structures. This has the potential to improve the service capacity of existing river structures, reduce operating costs, and defer or eliminate the need for certain capital expenditures.

In the absence of any detailed assessment of cost saving by DLWC, the Tribunal has set wholesale entitlement charges (detailed in the Pricing Schedule) to maintain proportional discounts to certain wholesale customers. For the next review, State Water should address in detail whether wholesale discounts should be extended to other large customers.

Licence and billing arrangements with some wholesale customers result in significant losses of potential revenue. For example, Murrumbidgee and Coleambally Irrigation Corporations are not billed for system losses through their channels. DLWC estimates unbilled water losses in these wholesale customers' systems for 1997/98 is approximately 316,000 ML and 100,000 ML, or \$227,500 and \$72,000 at 1998/99 prices, respectively.<sup>62</sup> DLWC should review the commercial viability of charging arrangements with these wholesale customers, including any legislative obstacles to charging for system losses.

#### **9.1.4 Irrigation high flow licences**

High flow licences permit access to water only when river flows reach a certain height. These entitlements were issued when regulated river licences were area based (generally 400 acres). Irrigators could access uncontrolled, high flows to irrigate additional land.

High flow usage by most water users has never been metered separately. High flow water usage data in the 1950s, 60s and 70s was assessed according to the land irrigated in excess of an irrigator's normal licence area.

Since the late 1970s, regulated river licences have been converted to volumetric allocations and area limits have been removed. Water users have been allowed to access an amount of water as "allocation" water, plus unlimited amounts of "off-allocation" water, whenever DLWC has identified "excess" flows in a river system. Access to off-allocation water has blurred the distinction between high flow and normal licence water. In most valleys, metering officers began to record all usage as either allocation or off-allocation.

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<sup>61</sup> Submission by Murray Irrigation Limited, pp 12 - 30.

<sup>62</sup> DLWC estimate long term losses are closer to 240,000 ML and 140,000 ML.

Of an estimated 220 remaining high flow licences, 11 are still recorded as high flow usage, principally because their usage is large, but erratic, or they are metered separately. High flow use by irrigators has been in the range of 40 - 7500 ML (only two licences use more than 600 ML). Many normal irrigation licences average around 1000 ML.

Water use by the remaining high flow licences is recorded as off-allocation usage, or in some cases the licence may be inactive.

Delivery service and metering charges were introduced from 1989/90. Charges were paid for allocation and off-allocation water, but high flow usage was not charged.

Prior to the MDBC cap, access to off-allocation flows was unlimited whenever river flows were above a certain height. Over the past five years some irrigators have handed in their high flow licences, as water could be accessed under similar conditions as off-allocation water. Some water users have retained their high flow licences, perhaps speculating that it would give them greater access to off-allocation flows when restrictions were imposed to meet the MDBC cap on extractions.

In its 1997/98 determination, the Tribunal replaced delivery service and metering charges with two-part tariffs. The Tribunal allowed DLWC to charge high flow licence holders the applicable regional usage price, but only where they had paid a delivery service charge in 1996/97.

In late 1996/97, DLWC billed some high flow licences on regulated streams as if they were unregulated river licences. This was not authorised in the Tribunal's determination. Bills ranged from \$80 to \$250 depending on the area of the licence.<sup>63</sup> Some water users on regulated rivers are likely to have been billed for delivery service and metering charges and the unregulated rivers charges in 1996/97.

In principle, water accessed under high flow licences should be charged at the price paid for off-allocation water. Water users use both methods of accessing water interchangeably, and DLWC has substantially aligned the conditions for access by both means.

DLWC incurs costs for managing river flows, including deciding when off-allocation water/high flows exist, and how much can be taken. Costs are closely related to water usage. Dams cannot be used to restrain high or off-allocation flows, so fixed charges are not appropriate.

For 1997/98, the Tribunal set a single usage price for all water accessed in a regulated river whether as high security, general security allocation or off-allocation. DLWC proposes charging all high flow licences at the valley-specific usage prices in 1998/99 and 1999/00.

The Tribunal has set the same usage price for all water accessed on regulated rivers whether it is accessed as allocation, off-allocation or high flow water. However, an exception has been made for Macquarie Generation in the Hunter Valley.

Macquarie Generation has a contract which runs until 2025 for delivery of up to 36,000 ML at a price determined by a formula in the Glennies Creek Dam Agreement, which has averaged around \$8/ML over the eight years to 1996/97. This is well in excess of the amount paid by holders of high security irrigation licences in the Hunter (or any other

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<sup>63</sup> These charges for unregulated rivers were set by the NSW Government in 1995/96 in its September 1995 water reform package and carried forward by the Tribunal in its 1996/97 determination.

valley) over the same period. DLWC cannot charge above the contract prices for this 36,000 ML.

Macquarie Generation also has a high flow licence allowing it to access unlimited amounts of water when river levels reach certain minimum heights. Macquarie Generation’s high flow licence is unique, being a high flow licence for industry rather than irrigation. The conditions of access for this licence are now equivalent to off-allocation water,<sup>64</sup> which in 1997/98 is charged in the Hunter region at the usage rate of \$2.50/ML. However, Macquarie Generation has never paid for this high flow water.

DLWC and Macquarie Generation are negotiating normalisation of Macquarie Generation’s licence arrangements. Macquarie Generation currently pays much more than irrigators for its contract water and much less (nothing) for its high flow water. Its average usage between 1989/90 and 1996/97 was 53,924 ML (34,619 ML as contract water and 19,305 ML as high flow).

Table 9.4 compares the effective price paid by Macquarie Generation for its total water use over the eight years to 1996/97 with the effective price the company would pay according to the irrigation water prices the Tribunal has set for 1997/98, 1998/99 and 1999/00.

**Table 9.4 Macquarie Generation: effective price<sup>1</sup> comparison**

Effective price for contract water and high flow water <sup>2</sup> (\$/ML)	Effective price if paying high security irrigation prices (\$/ML)		
	1997/98	1998/99	1999/00
4.59	4.48	4.65	5.58

1. Quoted prices are effective prices paid for each ML of water used. Actual price structures vary.
2. Average effective price for Contract water was \$8.07/ML. High flow water has not been changed.

The Tribunal has exempted Macquarie Generation from paying for its high flow water use during 1998/99 and 1999/00. The estimated discount to Macquarie Generation (below high security irrigation prices) in 1999/00 will be 22 percent. This should be compared with discounts to other large customers of 16 percent and 32 percent in 1997/98. Comparable sized customers are Jemalong Irrigation in the Lachlan Valley, which enjoys a discount of 16 percent (average usage of 75,000 ML), and Moira Irrigation in the Murray which receives a discount of 25 percent (average usage of 35,000 ML).

For the next price review in 2000/01, DLWC should review progress made in normalising Macquarie Generation’s licensing arrangements, and propose a mechanism to charge Macquarie Generation on a similar basis to other water users on regulated rivers.

Costs and projected revenues for the main regulated rivers are compared in Table 10.2 in section 10 below.

<sup>64</sup> Following a recommendation of the Hunter River Management Committee, from 1 July 1998 access to water as off-allocation and high flow water will be on the same conditions: the first 12 hours of “excess” flows (set by hydrologic flow rules) will not be pumped, flow targets must be met at three points in the river, and when these conditions are met, water users may access up to 50 percent of total “excess” flows.

## 9.2 Unregulated rivers

Water users on unregulated rivers hold licences to extract water subject to conditions which reflect the use to which the water is to be put (irrigation, towns, industry, recreational, stock and domestic). These classifications are not a good basis for pricing.

DLWC's costs on unregulated rivers are probably more closely related to the amount of water used, than to the use to which the water is put. However, this is not certain because DLWC's resource management services on unregulated rivers are not well defined. Further, existing levels of service and costs bear little resemblance to expanded service levels planned in the recent water reform agenda.

Licence holders on unregulated rivers do not enjoy security of supply as DLWC does not control the flow of water in these rivers. Water users take water when it is available, and many construct their own dams to store water until it is required (eg the water requirements of irrigators on coastal streams are highest during times of low river flows when access to water is restricted), or to stabilise supply conditions or water quality (eg town water supply). Many water users do not understand DLWC's activities to manage unregulated rivers.

DLWC's costs for resource management services are harder to identify on unregulated rivers. Most river structures are privately owned (eg dams owned by Sydney Water Corporation and Hunter Water Corporation) and may have been paid for by partnership funding between local councils and DLWC (eg gauging stations and town water supply dams). Many resource management functions on coastal rivers are carried out by local councils or water user groups in consultation with DLWC.<sup>65</sup>

Current levels of service on unregulated rivers statewide appear limited to basic data collection and management, and licence administration. The extent of localised service varies from valley to valley. DLWC enlists a vast number of local water user groups to manage conflicts or water quality problems as they arise.

Some water user groups function semi-autonomously from DLWC, enforcing limitations on access to water by informal means and voluntary compliance. Others are formed only during drought periods. Some water users are critical that DLWC does not enforce restrictions on access to water, thereby undermining voluntary water management by water users. In many valleys DLWC appears to limit its presence to crisis management.

DLWC plans fundamental reforms of how it manages unregulated rivers. Monitoring of extractions and flows is to be greatly expanded. Trading rules are being developed for water licences. Licence conditions and procedures for controlling access to water are to be reviewed. Restrictions will be enforced on access to water during prescribed low river flow levels. All NSW rivers are being surveyed to identify levels of environmental stress. Reforms will be targeted by an assessment now being completed of levels of environmental stress all NSW rivers. Unregulated river management committees are to be established to help DLWC generate management plans for stressed rivers.<sup>66</sup>

The Tribunal agrees that service levels need to be expanded on unregulated rivers, in the first instance by expanding the monitoring of water usage and river flows. DLWC appears to lack the basic data requirements needed to manage most streams. The Tribunal intends to

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<sup>65</sup> See the submission by the Bega Valley Water Users.

<sup>66</sup> DLWC main submission, section 4, pp 13 - 16.

establish a pricing regime which funds these basic statewide services, but allows localised, flexible pricing arrangements to be negotiated between water users and DLWC to pay for the costs of implementing river management plans.

The benefits of much resource management on unregulated rivers are localised public goods such as the resolution of conflicts over access to water, and mitigation of environmental problems such as poor water quality. These benefits are enjoyed primarily by local communities, particularly riverside land holders. Some businesses, such as tourist operators, capture private benefits, but their use of improved water quality does not exclude others from also enjoying these benefits.

The Tribunal believes the best way to recover the costs of these activities is to include negotiated cost reflective charges as part of river management plans. The Tribunal's interim report cites a model developed by the MDBC<sup>67</sup> for cost sharing of on-ground works. The MDBC has published further guidelines on how to value the public and private benefits arising from environmental and resource management improvements.<sup>68</sup>

Charges should cover the geographic area managed by the plan and be linked to service levels identified in the management plan. Plans should cover large enough areas to ensure upstream polluters/impactors can be charged additional costs where sources of pollution can be clearly identified.

Resource management activities to implement the plans could be undertaken by DLWC, State Water, water user groups, land holders or other organisations present in the catchment. Activities should be carried out under service agreements between those implementing the activity and the river management committees or DLWC as appropriate. Negotiated prices could be voluntary charges, or could come to the Tribunal for ratification. State Water would be able to enforce collection of ratified charges.

### 9.2.1 Area based licences

Irrigation licences from unregulated rivers are area based. Water users can irrigate an area of land, which may range from 2 to 6000 hectares. There are no limits on the volume of water that may be used and usage is not metered (except for some large users on the Barwon-Darling River).

In 1996/97, charges were a stepped scale of fees that started from \$80 for under 12 hectares and rose to \$250 for over 162 hectares. The effective price per hectare fell significantly as licence area increased, giving a price signal which is not cost reflective and not consistent with demand management goals.

In its September 1997 determination, the Tribunal retained the stepped scale of fees, but realigned charges closer to \$3.75 per hectare across the scale. The scale began at \$50 for up to 12 hectares and rose to \$608 for 162 hectares. Licences above 162 hectares were charged \$3.75 per hectare.

For 1998/99 and 1999/00, DLWC proposes replacing the stepped scale of charges with a flat fee per hectare. The Tribunal has approved charges for 1998/99 and 1999/00 based on the

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<sup>67</sup> The Tribunal, *Bulk Water Prices: an interim report*, section 6.9, pp 73 - 76. See also, Murray Darling Basin Commission, *Cost Sharing for On-ground Works*, June 1996.

<sup>68</sup> AACM International *Guide to Cost Sharing for On-Ground Works*, report for the Murray Darling Basin Commission, December 1996.

revised structure because it is a better proxy for water usage until water usage is metered or otherwise monitored.

The Tribunal has also revised its 1997/98 determination to replace the stepped scale of fees with a flat charge of \$3.75 per hectare, but maintaining the minimum bill of \$50. This removes inequities between water users paying very different bills while holding similar sized licences (one below a step in the fee scale and the other marginally above). Any water users affected by this revision will receive a reduction in their bill. The Tribunal has also decided to cap the maximum bill for an area based licence on an unregulated river in 1997/98 at \$2,000. This cap will not apply in future years as water users will have the option of metering their usage and being charged at the volumetric prices discussed below.

Charges on water usage give the correct signals for demand management (conservation of water to reduce external environmental costs and resource management problems) and are probably more cost reflective (fewer asset related costs). However, the present charge per hectare for irrigation water is unsatisfactory because:

- estimates of water use for irrigation vary from 2 to 14 megalitres per hectare depending on location, crop type, soil type and weather conditions
- water users cannot reduce their bills by conserving water
- DLWC probably incurs significantly less cost per licence hectare to manage the estimated 6,100 licences (50 percent of those issued) that are inactive.<sup>69</sup>

### 9.2.2 Volumetric licences

Many towns and industrial water users already have meters on their water supply from unregulated rivers, but do not have area based or volumetric licences. Hence, the 1997/98 tariff structure for towns, industry and recreational water licences was a flat fee of \$100 plus a usage fee of \$0.47 per megalitre.

To allow irrigation water to be charged on the same tariff structure when metered, the Tribunal set the (\$0.47) usage price at the implied usage charge for irrigation water, assuming a usage of 8 ML to one hectare. DLWC now indicate (based on voluntary water returns from users) that 2 ML per hectare is a more common level of usage. If area based licences are converted to volumetric licences at 2 ML per hectare, they will receive a reduction in water bills. Some discount is appropriate as water users will have to pay for the cost of installing meters.

However, the discount is probably too great in 1997/98. Accordingly, the Tribunal has increased volumetric charges proportionately more than area based charges. The Tribunal has retained the base charge of \$100. The volumetric charge has been increased to \$0.60 per ML in 1998/99 and \$0.70 per ML in 1999/00. Charges apply in all regions except the Murray which has been frozen at 1997/98 prices to avoid over recovery.

These prices will increase state wide revenue by \$110,000 in 1998/99 and \$212,000 in 1999/00. The Tribunal will vary prices between regions in future years if DLWC can demonstrate this is cost reflective.

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<sup>69</sup> DLWC main submission, section 5.10, p 38.

### 9.2.3 Metropolitan water utilities

The Tribunal has maintained the existing charge for Hunter Water Corporation (HWC) and Sydney Water Corporation (SWC) of \$1.80/ML of water usage. Typically, this results in bills of \$126,000 and \$1,062,000 per annum.<sup>70</sup>

HWC and DLWC have a liaison committee which negotiates funding of resource management and regulatory activities. HWC and DLWC agree that \$1.80 per ML is the correct charge to fund these activities.

DLWC does not separately record costs attributable to SWC. Costs attributable to SWC are likely to increase over the next two years as DLWC takes over resource management activities previously performed by SWC. DLWC is also likely to incur additional costs to establish and manage a water licences for SWC, and to implement recommendations made by the Healthy Rivers Commission in its report on the Hawkesbury Nepean river, due to be released in the third quarter of 1998.

The Tribunal believes there is scope to expand negotiated fees to include more large customers in the future. Many coastal local councils conduct extensive resource management in their catchments.<sup>71</sup> Negotiated fees for service will allow these councils to coordinate with DLWC to carry out resource management as efficiently as possible and recover costs from those benefiting from, or causing the need for, localised resource management.

### 9.2.4 High flow licences on unregulated rivers

From 2000/01, DLWC has indicated it wishes to charge different prices for licences to access high, medium or low flows. DLWC has begun converting more licences (town, industrial and irrigation) into high flow licences to meet environmental flow rules. Few such licences exist yet. Most are held by coastal towns.

Unregulated river high flow licences have been billed as for any other unregulated river licence. For 1997/98 this has been \$3.75 per hectare of authorised irrigation area.

For 1998/99 and 1999/00 high flow licences on unregulated rivers will continue to be charged on the same basis as all other irrigation licences. Costs and revenues for unregulated rivers in each region are compared in Table 10.3 in section 10 below.

## 9.3 Ground water

Most ground water licences have a volumetric entitlement. Licences for over 20 ML must to be metered, but reliable metering data is only collected in defined ground water management areas.<sup>72</sup> Charges for 1997/98 comprise a base charge of \$85 per property (or \$110 in defined ground water management areas), plus a fixed charge of \$0.40 per ML of licence entitlement, and a usage charge of \$0.20 per ML of usage.

In its last determination, the Tribunal modified the 1996/97 pricing structure by increasing the base charge by \$10 from \$75 (from \$100 in defined areas) and introducing the usage

<sup>70</sup> DLWC main submission, section 7.4, p 62.

<sup>71</sup> Tweed Shire Council submission and contribution at Coffs Harbour regional meeting.

<sup>72</sup> Ground water management areas are covered by a management plan. DLWC's localised resource management is focussed in these areas because of significant competing uses of water.

charge. The Tribunal believes the costs of managing ground water usage increase with the extent of water usage.

Some statewide resource management is required to collect and manage data on ground water. To help water users locate new bores, DLWC provides general information on the location, availability and quality of ground water. DLWC also controls the location of new bores to protect access to water by existing bores. To do this, it collects and maintains information on the location, types and usage of existing bores.

In some aquifers, resource management is required to limit water use to the recharge rate of the aquifer and protect water quality. By limiting extraction rates, DLWC improves the continuity of supply. If over extraction of water lowers aquifer levels, shallower bores (particularly stock and domestic spear points) can dry up.

Depending on the aquifer, resource management can be a very complex task or completely unnecessary. Some shallow coastal aquifers retain water for only a short time after rainfall. They are essentially underground streams. DLWC has a very limited role in managing these aquifers unless there is a need to monitor and protect water quality.

Other aquifers provide reliable supplies, eg the Tomago sandbeds in the Hunter region which supply 25 percent of Newcastle's water use.<sup>73</sup> To protect water quality, the surrounding land and water uses must be managed intensively. Alluvial aquifers such as those in the Namoi valley are linked to river systems and subject to large extractions. Extraction rates must be managed intensively in conjunction with regulated river systems.

To implement the August 1997 water reform agenda, DLWC plans to expand resource management well beyond existing service levels. In aquifers subject to large extractions, DLWC will undertake detailed modelling, hydrological assessments and mapping to set sustainable limits to water use. Ground water management committees will be formed to help DLWC develop and implement management plans. Management plans will cover management rules, changes to entitlements, transfer policies, and extraction rates.

Ground water resource management has similar cost drivers to unregulated rivers. DLWC does not own bore infrastructure and its involvement varies dramatically between aquifers. Some state wide costs are incurred in establishing a basic understanding of the resource. Voluntary records of water usage by ground water users are collated and managed. DLWC maps aquifers and conducts basis hydrologic modelling. Long term plans and general policies for managing the resource are established by DLWC. The benefits of this work are remote from individual water users.

However, complex and expensive localised management is required in certain aquifers. Defined ground water management areas are generally subject to intensive management and management plans are in place or being developed. The beneficiaries of this work are those who have rights to access water from the aquifer. There are few other direct beneficiaries of the resource. This should make cost sharing more straightforward. There is more opportunity for cost sharing the management of ground water quality on the basis of polluter-pays.

The Tribunal believes the approach to cost recovery for ground waters should be similar to that recommended for unregulated rivers. The costs of localised resource management should be recovered by cost-reflective charges negotiated with water users and other

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<sup>73</sup> DLWC main submission, section 3.2, p 10.

stakeholders on aquifer management committees. Charges should be linked to service levels specified in agreements which form part of the aquifer management plan. Charges could be voluntary or could be set by State Water and brought to the Tribunal for ratification if State Water is to enforce collection.

DLWC proposes the following criteria in relation to ground water prices:

- all water users be subject to a minimum bill size of \$60
- different, cost reflective charges be established for inland and coastal areas
- that the per property charge be removed and replaced with a higher entitlement charge
- that the existing \$25 premium in ground water management areas be maintained
- usage charges be increased in ground water management areas, but kept low in areas outside management areas.

For 1998/99 and 1999/00, the Tribunal has set the following charges:

- the base charge has been set at \$75 or \$100 in defined management areas
- the fixed charge has been increased by \$0.10 per year to \$0.50 in 1998/99 and \$0.60 in 1999/00 per ML of licence entitlement
- the variable charge has been increased by \$0.05 per year to \$0.25 and \$0.30 per ML in 1998/99 and 1999/00, and applies only to water usage in defined management areas (water usage is not reliably metered unless the aquifer is in a defined management area)
- charges will apply in all regions except the Murrumbidgee and Barwon which will be frozen at 1997/98 levels to avoid over recovery.

The base charges in 1997/98 have been reduced to \$75 (and \$100 in a management area) to avoid over recovery in some regions. Charges for 1997/98 had a free water allowance for the first 20 ML of usage and entitlement on all licences. This has been removed in all regions in 1998/99 and 1999/00, including the Murrumbidgee and Barwon, because it gives the wrong signals for water conservation.

These prices will increase statewide revenue by \$172,000 in 1998/99 and \$130,000 in 1999/00. In future, the Tribunal will vary prices between regions or valleys where DLWC can demonstrate this method is cost reflective. Costs and revenues for ground water in each region are compared in Table 10.4 in section 10 below.

## 9.4 Other bulk water charges

### 9.4.1 Proposed metering fees

DLWC intends to phase in the monitoring of water usage on unregulated rivers and ground water where this is required for managing water resources. Various types of metering and other forms of usage monitoring are being trialed.<sup>74</sup>

The Tribunal has supported the need for expanded metering and monitoring of water usage.<sup>75</sup> This support was echoed in many submissions and at public hearings and regional meetings.

<sup>74</sup> DLWC presentation at Bega public hearing, 15 April 1998.

<sup>75</sup> IPART, *Bulk Water Prices from 1 July 1997*, section 5.5.2, pp 21 - 22.

*Installation costs*

DLWC estimates the cost of installing a water meter (including purchase) as ranging from \$350 to \$4,050 depending on the type of meter.<sup>76</sup> Installation and maintenance of meters will be conducted by contractors after an open tender process managed by DLWC. Local water users' associations will be involved in planning and implementation.<sup>77</sup> Water user groups in Bega, the Hawkesbury Nepean and the Barwon Darling are currently involved in the metering trials.<sup>78</sup>

DLWC asked the Tribunal to endorse the following process,<sup>79</sup> rather than a fixed table of costs:

1. a survey is undertaken to determine necessary metering technology
2. tenders are called to supply and install the meters
3. licensees are billed the installation costs as determined by tender
4. maintenance services are selected by competitive tender
5. metered licensees are charged an annual fee consisting of a DLWC fee for data management, audit, calibrations, etc, plus a maintenance fee as determined by competitive tender.

The Tribunal is impressed with DLWC's proposed process for implementing water monitoring. Close cooperation with water user groups should ensure appropriate technology is selected. Various trials are being carried out to ensure the results can be applied across the state. Tendering for supply of services encourages competition in the supply of these services.

*Ongoing costs*

DLWC estimates the on-going costs of data management, audit, contract management, recalibration and maintenance at \$155 per meter or \$11.70 per hectare per annum.<sup>80</sup> This is based on meter readings being phoned or faxed in by water users and DLWC's conducting random audits and calibrating readings. DLWC has proposed a fee of \$155 per meter to recover the costs of data management, audit visits and maintenance of meters.

Creating a new metering charge for all metered users would effectively increase minimum bills on unregulated rivers by multiples of \$155, depending on how many meters a particular user had.

For 1997/98, the Tribunal changed the pricing structure for towns and industry on unregulated rivers to avoid a similar result. Neighbouring towns with very similar usage were receiving very different total bills depending on the number of river off-takes they had.

Differential charging for metered users may be more cost reflective. It is unlikely that licence holders on unstressed rivers will ever have their water usage metered/monitored. On stressed rivers, metering will be more prevalent, but the coverage is uncertain. DLWC's

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<sup>76</sup> DLWC main submission, section 5.9 p 37.

<sup>77</sup> DLWC main submission, Appendix 5, pp 102 - 104.

<sup>78</sup> DLWC presentation at Bega public hearing, 15 April 1998, *Monitoring Water Usage on Unregulated Streams and Aquifers*.

<sup>79</sup> DLWC main submission, section 7.4.5, pp 64 - 65.

<sup>80</sup> DLWC main submission, section 5.9 p 37 and Appendix 5 pp 102 - 104.

maintenance and metering costs will vary considerably depending on the metering technology selected.

However, allowing additional metering charges will complicate the tariff structure. The ultimate coverage of metering, and hence potential increase in revenue, is uncertain. If all users on unregulated rivers were metered potential revenue would be \$930,000. The ultimate coverage of meters is likely to be much smaller.

The Tribunal has not agreed to the new metering fee, but additional metering expenses will form part of the costs to be recovered in usage charges following the next price review in 2000. Until then, additional metering activities should be undertaken within current funding levels. Cost recovery during 1998/99 and 1999/00 will not reach a level where there is any degree of cross-subsidy between unmetered and metered users.

#### 9.4.2 Licence fees: application, renewal and transfers

Licence charges are payable every five years. A large number of holders choose to make annual payments toward the cost of their licence. Licence charges raise around \$1.5m per annum. DLWC has indicated it will develop pricing proposals for reviewing its licensing charges if the Tribunal gives approval for a 50 percent increase in revenue from licence charges.

The Tribunal has frozen all licence fees (issue, renewal, transfers) for 1998/99 and 1999/00 at 1997/98 levels and requested that DLWC include an efficiency review of issue, renewal and transfer processes in its next submission.

Licence fees are complex. In previous submissions, DLWC has not addressed licensing costs and fees because of a mistaken belief that the Tribunal does not set these charges. In its 1997/98 determination, the Tribunal froze licence fees at 1996/97 levels and asked DLWC to address them in its next submission.

In August 1997, DLWC gazetted increased and restructured licence fees. Following discussions, DLWC instructed its officers to charge the pre-August 1997 fees where possible. This is administratively very difficult as the August 1997 NSW Government Regulation restructured many licence categories.

Table 9.5 shows the distribution of licences across each water source. Many licences on unregulated rivers are inactive.

**Table 9.5 Summary of Water Licences in NSW (as at January 1998)**

	Regulated Rivers	Unregulated Rivers	Ground water	Total Water Licences
<b>Current</b> <sup>1</sup>	6,200	12,200	70,000 <sup>3</sup>	88,400
<b>Not extracting water</b> <sup>2</sup>	5% est.	50% est.		
<b>Extracting water</b>	5,900	6,100		

1. Current means that fees have been paid.

2. Estimated at January 1998.

3. 42920 licences logged on electronic data base, plus approximately 25,000 unlogged licences of which there are only paper copies.

### *Surface water licences*

DLWC estimates that its expenditure on surface water licensing activities (issue, renewal and transfers) in 1996/97 was \$3.26m and the revenue collected from fees for issue and renewal of licences was \$1.33m.

Approximately 80 percent of current surface water licences are for irrigation. Irrigation licence issue and renewal fees for unregulated rivers are on a scale from \$113 to over \$878 (usually per five years), based on the irrigated area. Similar fees are charged on regulated rivers but based on entitlement volumes.

The remaining 20 percent of current licences are for extraction by industry, town water supply, stock and domestic use, farming, recreation or mining. The licence issue and renewal fees for these non-irrigation licences are on a scale from \$113 to over \$271, based on maximum water diversion rates. In the case of dams, a set fee of \$60 to \$117 applies (again usually per five years).

Licences are not required for riparian use (where small pumps and/or small dams are used to supply water for household use).

### *Ground water licences*

About 90 percent of existing bore licences have been issued in perpetuity for stock, domestic, test and observation purposes, and licences for irrigation and commercial purpose bores with a usage of less than 20 ML/per annum.

The remaining 10 percent are renewable every five years (or every 10 years for town water supply). Within the Riverina area, where ground water has a high salinity level and where land and water management plans exist, some of the bores are issued for 20 year periods. Ground water licence issue and renewal fees are \$151 per five years.

DLWC estimates its expenditure on ground water licensing activities (issue, renewal and transfers) in 1996/97 was \$1.02m and the revenue collected from fees for the issue and renewal of licences was \$182,000.

### *Issue and renewal*

Appendix 4 of DLWC's submission outlines the process followed to issue and renew a licence. Very few new licences have been issued in recent years as embargoes have been in place on regulated streams.

Licences are renewed every five years (every 10 years for towns and government instrumentalities). Renewal of a licence is equivalent to granting a new licence and should follow the above steps. In practice, DLWC appears to process renewals without any of these steps.

Notwithstanding DLWC's estimated under recovery of costs, existing fees for renewal of licences appear excessive. Very few new licences are likely, given the MDBC cap on extractions. A full licence fee is also charged when a permanent transfer is made, notwithstanding the number of years remaining on the old licence.

### *Transfers*

DLWC's processes for the renewal and transfer of licences<sup>81</sup> seem bureaucratic and complex. Whilst the environmental impacts of transfers are important, they should be assessed in terms of valley-specific limits to trade (which DLWC is developing) rather than by ad hoc site visits.

Advertising requirements are an anachronistic requirement of the *Water Act 1912*. The legal aspects of transfers are copied from land conveyancing and are unnecessarily complex for a transfer of water.

Two full-time staff from each region and two from Parramatta are dedicated to transfers (18 people or \$700,000 in staff costs). DLWC reports that surface water temporary transfers take three hours to process and permanent transfers take 10 hours. DLWC relates that staff cost (including on-costs) average \$30 per hour. Ground water transfers have a higher cost as they require aquifer conditions to be reassessed. Permanent transfers cost more as they require full property title searches. DLWC claims that all transfer charges under recover costs.

### *Irrigation Areas and Districts*

Five licences under the *Irrigation Corporation Act 1994* authorise irrigation areas and districts<sup>82</sup> that were previously covered by various Irrigation Acts. These licences are issued by the Ministerial Corporation. The Tribunal has not determined a price for these irrigation area and district fees.

#### **9.4.3 Irrigators Council Levy**

The Irrigators Council levy a voluntary levy of \$0.05/ML on entitlement, is collected by DLWC on behalf of the NSW Irrigators Council. The Tribunal does not set charges in relation to any voluntary levies. Hence this charge is unaffected by this determination.

## **10 PROJECTED INCREASES IN REVENUE**

Section 16 of the Tribunal Act requires an assessment of the likely annual cost to government's consolidated fund if prices are not increased to the maximum level.

Bulk water revenues are difficult to forecast accurately due to variable demand patterns, allocation levels and climatic conditions. To permit comparison the Tribunal has used DLWC's estimate of long term average usage to estimate revenue under the new charges.

The new bulk water prices to apply from 1 July 1998 are estimated to increase revenue by \$2.75m for 1998/99 and \$4.09m for 1999/00. Table 10.1 shows recent and projected increases in revenue from bulk water charges.

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<sup>81</sup> DLWC main submission, Appendix 4, p 100.

<sup>82</sup> Western Murray Irrigation Areas Limited, Murray Irrigation Limited, Jemalong Wyldes Plains Irrigation Limited, Coleambally Irrigation Corporation, Murrumbidgee Irrigation Corporation.

**Table 10.1 Revenue from bulk water prices**

Water year	Usage (000 ML)	Revenue, \$m	Change	Billing Date	Revenue Received
1994/95	5,892	10.20		8/95	9/95
1995/96	5,130	20.40	100.0%	8/96	9/96
1996/97	6,430	23.30	14.2%	8/97	9/97
1997/98	5,544	26.50	13.7%	8/98	9/98
1998/99	5,154	29.25	10.3%	8/99	9/99
1999/00	5,154	33.34	14.0%	8/00	9/00

1. All revenue figures exclude 5 yearly licence charges (approximately \$1.5m per annum) and the Pindari Dam levy in the Barwon region (\$1.5m to \$2m per annum, depending of water usage).
2. Revenues for 1997/98 is based on DLWC's estimate of actual water usage based on eleven months usage.
3. Revenues for 1998/99 and 1999/00 are based on DLWC's estimate of long term usage of 5.154 million ML.

### 10.1.1 Regulated rivers

Changes to the regulated river prices are likely to generate an additional \$2.469m in 1998/99 and \$3.752m in 1999/00. The impact of the new price levels and pricing structure is estimated in Table 10.2.

**Table 10.2 Forecast revenue increases from regulated rivers (\$1996/97 000s)**

Valley	Costs	Estimated revenue			Increase	
		1997/98	1998/99	1999/00	1998/99	1999/00
Murray	8,386	5,003	6,148	7,378	1,145	1,230
Murrumbidgee	7,106	5,459	6,262	7,106	804	844
Lachlan	3,823	2,397	2,439	2,927	43	488
Macquarie	3,964	2,418	2,966	3,559	548	593
Namoi (incl Peel)	3,401	2,058	2,175	2,610	118	435
Gwydir	2,617	3,147	2,617	2,617	-530	0
Border	1,626	1,494	1,626	1,626	132	0
Hunter	2,748	530	726	871	196	145
Toonumbar	303	19	23	28	4	5
Brogo	511	54	65	78	11	13
<b>Total</b>	<b>34,485</b>	<b>22,579</b>	<b>25,048</b>	<b>28,800</b>	<b>2,469</b>	<b>3,752</b>

1. Revenue figures for 1997/98 are based on estimated actual usage.
2. Revenue projections for 1998/99 and 1999/00 are based on DLWC's estimate of long term average usage of 5.154 million ML.

### 10.1.2 Unregulated rivers

Changes to the unregulated river prices are likely to generate an additional \$110,000 for 1998/99 and \$212,000 in 1999/00. The regional impact of the new price levels and pricing structure is estimated in Table 10.3.

**Table 10.3 Forecast revenue increases from unregulated rivers (\$1996/97 000s)**

Region	Costs	Revenues			Increases	
		1997/98	1998/99	1999/00	1998/99	1999/00
Barwon Darling	559	163	121	148	-42	27
Barwon	254	176	206	242	30	36
Intersecting Streams	108	18	21	25	3	4
Central West	268	61	72	85	11	13
Murrumbidgee	215	106	124	146	18	22
Murray	50	71	71	71	0	0
North Coast	597	252	286	327	34	41
Hunter	207	157	179	206	22	27
Sydney S'th C'st	673	238	272	314	34	42
Hunter Water Corp.	26	126	126	126	0	0
Sydney Water Corp.	-	1,062	1,062	1,062	0	0
<b>Total</b>	<b>2,958</b>	<b>2,431</b>	<b>2,541</b>	<b>2,753</b>	<b>110</b>	<b>212</b>

1. Cost shown for Hunter Water Corporation are a low spending year (1996/97) in a negotiated work program. HWC agrees that the longer term amount attributable to HWC will probably be closer to \$1.80 per ML, or approximately \$126,000 per annum.
2. DLWC does not separately record costs attributable to Sydney Water Corporation (SWC). Costs attributable to SWC are likely to increase over the next two years as DLWC takes over resource management activities previously performed by SWC. DLWC is also likely to incur additional costs to establish and manage a water licence for SWC, and to implement recommendations made by the Healthy Rivers Commission in its report on the Hawkesbury Nepean river, due to be released in the third quarter of 1998.

### 10.1.3 Ground water

The changes to ground water prices are likely to generate an additional \$172,000 in 1998/99 and \$130,000 in 1999/00. The regional impact of the new price levels and pricing structure is estimated in Table 10.4.

**Table 10.4 Forecast revenue increases from ground water (\$1996/97 000s)**

Region	Costs	Estimated revenues			Increases	
		97/98	98/99	99/00	98/99	99/00
Murrumbidgee	271	274	278	278	4	0
Murray	284	190	231	270	41	39
Central West	345	222	275	324	53	49
Far West	431	159	192	220	33	28
Barwon	517	494	513	513	19	0
Syd/South Coast	674	41	46	49	5	3
Hunter	200	57	67	74	10	7
North Coast	168	51	58	62	7	4
<b>Total</b>	<b>2,891</b>	<b>1,488</b>	<b>1,660</b>	<b>1,790</b>	<b>172</b>	<b>130</b>

## **11 COMPLIANCE**

### **11.1 Bulk water prices**

Compliance with the Tribunal determinations is required under Section 18 of the *Independent Pricing and Tribunal Act 1992*. Regulated government agencies are required to include details relating to the implementation of a determination in their annual report.

In its Annual Report for 1997/98, the DLWC is required to detail how each element of the 1997/98 determination has been implemented.

### **11.2 Report recommendations**

Reporting on the implementation of the Tribunal's recommendations is required under Section 18 of the *Independent Pricing and Tribunal Act 1992*. The annual report of a regulated government agency must contain a section detailing its compliance with the Tribunal's recommendations.

## 12 QUESTIONS ABOUT MAXIMUM PRICES

Any questions relating to the maximum prices in this determination should be directed to Mr Alex McMillan at the Tribunal on (02) 9290 8405.

**The Tribunal has no role in defining how a customer's licence is classified, or the size of a water licence or in setting the regional allocation announcements.**

Questions relating to licence classifications, entitlements and allocations should be directed to the relevant head office or regional office of DLWC, as follows.

### **SYDNEY**

23-33 Bridge Street  
GPO Box 39  
Sydney NSW 2001  
(02) 9228 6111

### **PARRAMATTA**

Macquarie Tower  
Ground Floor  
10 Valentine Avenue  
PO Box 3720  
Parramatta NSW 2124  
(02) 9895 6211

### **MURRAY**

8-20 Edwards Street  
PO Box 205  
Deniliquin, NSW 2710  
(03) 5881 2122

### **FAR WEST**

45 Wingewarra Street  
PO Box 1840  
Dubbo, NSW 2830  
(02) 6883 3000

### **HUNTER**

19 Mitchell Drive  
PO Box 424  
East Maitland, NSW 2323  
(02) 4934 1055

### **SYDNEY/SOUTHCOAST**

84 Crown Street  
PO Box 867  
Wollongong, NSW 2520  
(02) 4226 8591

### **NORTH COAST**

49-51 Victoria Street  
PO Box 339  
Grafton, NSW 2460  
(02) 6640 2200

### **MURRUMBIDGEE**

43-45 Johnston Street  
PO Box 10  
Wagga Wagga, NSW 2650  
(02) 6923 0475

### **BARWON**

155-157 Marius Street  
PO Box 550  
Tamworth, NSW 2340  
(02) 6764 5900

### **CENTRAL WEST**

181 Anson Street  
PO Box 53  
Orange, NSW 2800  
(02) 6360 8278

Thomas G Parry  
*Chairman*  
16 July 1998





**INDEPENDENT PRICING AND REGULATORY TRIBUNAL**  
OF NEW SOUTH WALES

**DETERMINATION OF PRICES FOR BULK WATER SERVICES UNDER SECTION 12  
(1)(a) OF THE INDEPENDENT PRICING AND REGULATORY TRIBUNAL ACT, 1992**

**Matter No.:** SPDR/95/01

**Determination:** No, 98-5

**Agency:** The Water Administration Ministerial Corporation (administered by the Department of Land and Water Conservation).

**Services:** Any services provided by the Water Administration Ministerial Corporation, to the extent that the service involves:

- a) the making available of water; or
- b) the making available of the Corporation's supply facilities; or
- c) the supplying of water, whether by means of the Corporation's water supply facilities or otherwise.

**Declaration of government monopoly services under Section 4 of the Act:**

Order dated 4 October 1995 - page 7115, Gazette No. 122

**Maximum prices determined under Section 14 of the Act to be charged from 1 July 1998 and 1 July 1999 (except for regulated water supply in the Barwon region where the maximum prices will apply from 1 October 1998 and 1 October 1999).**



## PRICING SCHEDULE

Table P1 Regulated rivers prices

Valley	1997/98			1998/99			1999/00		
	Fixed Charge (\$/ML of entitlement)		Usage Charge (\$/ML of usage)	Fixed Charge (\$/ML of entitlement)		Usage Charge (\$/ML of usage)	Fixed Charge (\$/ML of entitlement)		Usage Charge (\$/ML of usage)
Security	High	Low.		High	Low		High	Low	
<b>Murray &amp; Lower Darling</b>	2.53	2.30	0.60	3.04	2.76	0.72	3.64	3.31	0.86
<b>M'bidgee</b>	2.42	2.30	0.60	2.90	2.76	0.72	3.30	3.13	0.82
<b>Lachlan</b>	3.15	2.10	2.60	3.78	2.52	3.12	4.54	3.02	3.74
<b>Macquarie</b>	2.60	2.00	2.70	3.12	2.40	3.24	3.74	2.88	3.89
<b>Namoi (incl Peel)</b>	4.50	3.00	3.50	5.40	3.60	4.20	6.48	4.32	5.04
<b>Gwydir</b>	4.50	3.00	3.50	4.11	2.74	3.19	4.11	2.74	3.19
<b>Border</b>	4.50	3.00	3.50	4.38	2.92	3.41	4.38	2.92	3.41
<b>Hunter</b>	3.08	2.20	2.50	3.70	2.64	3.00	4.44	3.17	3.60
<b>Toonumbar</b>	3.90	3.00	2.00	4.68	3.60	2.40	5.62	4.32	2.88
<b>Brogo</b>	3.90	3.00	2.00	4.68	3.60	2.40	5.62	4.32	2.88

1. Prices on regulated rivers are valley or region based.
2. The Tribunal has revised its 1997/98 determination to reduce prices to industrial licence holders from \$10/ML to the applicable valley two part tariffs for high security licences shown in the first three columns of Table P.1.
3. All high security licences (including industry licences) pay the high security fixed charge on each ML of licence entitlement and the usage charge on each ML of water usage.
4. All low security licences pay the low security fixed charge on each ML of licence entitlement and the usage charge on each ML of water usage.
5. The usage charge is paid on all water used, whether this is designated as allocation, off-allocation, high flow or any other form of supply.
6. Macquarie Generation's high flow licence shall be exempt from the usage charge in the Hunter region for the duration of this determination.

Table P2 Wholesale fixed charges

Customer	1997/98	1998/99	1999/00
Murray Irrigation Limited	2,112,000	2,534,400	3,041,280
Western Murray Irrigation	112,500	135,000	162,000
West Corugan	112,500	135,000	162,000
Moira Irrigation Scheme	62,000	74,400	89,280
Eagle Creek Scheme	29,200	35,040	42,048
Murrumbidgee Irrigation Corporation	2,053,000	2,463,600	2,798,650
Coleambally Irrigation Corporation	756,000	907,200	1,030,544
Jemalong Irrigation Limited	151,500	181,800	218,160

**Table P3 Unregulated rivers prices**

	\$	1997/98		1998/99		1999/00	
		Usage charge \$/ML usage	Area charge \$/hectare	Usage charge \$/ML usage	Area charge \$/hectare	Usage charge \$/ML usage	Area charge \$/hectare
Minimum bill if charged by area	50		3.75		4.50		5.40
Base charge if charged for usage	100	0.47		0.60		0.75	

1. Prices apply to all regions except the Murray.
2. 1998/99 & 1999/00 prices for the Murray region are capped at 1997/98 levels.

**Table P4 Ground water prices**

	1997/98	1998/99	1999/00
Base charge - management areas (\$)	100	100	100
Base charge - non management areas (\$)	75	75	75
Fixed charge (\$/ML licence entitlement) all areas	0.4	0.50	0.60
Usage charge (\$/ML usage) management areas	0.2	0.25	0.30

1. 1998/99 & 1999/00 prices in Table 5 apply to all regions except the Murrumbidgee and Barwon regions.
2. Murrumbidgee and Barwon ground water prices for 1998/99 and 1999/00 will be capped at 1997/98 levels.
3. In 1997/98, the first 20 ML of licence entitlement and usage were not charged.
4. For 1998/99 & 1999/00, the entitlement charges applies to all MLs of licence entitlement, and the usage charge applies to all usage in management areas.
5. Usage in non-management areas is not metered.

Prices for 1999/00 shown in Tables P1, P2, P3 and P4 will be adjusted for inflation. All 1999/00 prices in these tables shall be increased in line with the average all-groups CPI for Sydney for the four quarters to March 1999 on the average index value for the four quarters to March 1998, except that the minimum bill for area-based licences shall remain at \$50, and all base charges shall remain at \$100 (or \$75 in non-ground water management areas).

Hunter Water Corporation and Sydney Water Corporation shall pay \$1.80/ML of water usage in 1998/99 and 1999/00. Maximum prices have not been set for charges to the Lowbidgee Flood Control and Irrigation District; Waddy Scheme; Wakool, Colligen and Niemer; Little Merran Trust; and Gol Gol Creek and Gol Gol Creek North. Charges to these customers are not affected by this determination. All other prices or charges for bulk water services provided by the Water Administration Ministerial Corporation not referred to in this determination are to remain at 1996/97 levels.

The Water Administration Ministerial Corporation cannot levy any new or additional charges for any bulk water services other than in accordance with this determination, or with Tribunal approval in future determinations. New and existing voluntary charges can continue to be negotiated between the Water Administration Ministerial Corporation and water users without referral to the Tribunal.

Thomas G Parry  
*Chairman*  
 16 July 1998

## **APPENDIX 1 LIST OF SUBMISSIONS**



**Bulk water prices for 1998/99 and 1999/00**

<b>Organisation</b>	<b>Representative</b>
	Mr & Mrs EK & BJ Bates
	Mr & Mrs I & S Bennic
	Mr & Mrs MD & VP Bligh
	Mr John Brigden
	Mr Ron Burgess
	Mr David Cameron
	Mr Neville Cameron
	Mr & Mrs S & J Crocket
	Mr G J Desmond
	Mr F Evans
	Mr & Mrs BJ & RL Eyeington
	Mr Eric Fair
	Mr Barry Gilbert
	Mr & Mrs D R & P Gowing
	Mr Philip Griffith
	Mr & Mrs R & G Hammond
	Mr Mick Harewood
	Mr & Mrs Harold & Ruth Harrison
	Mr Peter Hodges
	Mr AB & GF Jarrett
	Mr Arhur E Jeffries
	Mr Dudley Marrows
	Mr & Mrs R & P Martin
	Mr & Mrs IW & G McKnight
	Mr & Mrs R & B Metcalf
	Ms Kay Page
	Mr Laurie Pengelly
	Ms Janine Reed
	Mr Greg Riley
	Mr J D Robertson
	Mr M C Roughley
	Mr & Mrs MT & RA Rowe
	Mr E A Seery
	Mr & Mrs Nigel & Sue Smith
	Mr Geoffrey L Swain
	Mr Tom A Swain
	Mr Ward
	Mr M Wards
	Mr Doug White
	Mr Greg White
	Mr Peter Wilkinson
Australian Pecan Growers Association Inc.	Mr Ron Haggart

## Independent Pricing and Regulatory Tribunal

Organisation	Representative
Australian Pecan Growers Association Inc.	Mr Ron Haggart
Bective Station Pty Ltd	Mr J R Vickery
Bega Valley Water Users Assoc. Inc.	Mr John Hukins
Border Rivers Food and Fibre	Mr Bruce McCollum
Border Rivers Food and Fibre	Mr Bruce McCollum
Bourke Water Users Association	Mr Ian Cole
Cadell Construction Joint Water Supply Scheme Inc	Mr K J Barlow
Casino Council	Mr Ross Schipp
Clarence Environment Centre	Ms Christina Sharman
Clarence Valley Conservation Coalition Inc	Ms Leonie Blain
Colly Cotton Group of Companies	Mr E A Rowlands
Country Meatworks Association of NSW	Mr Martin G Iffland
Davidson Bros Electrical Service P/L	Mr D R Davidson
Dept of Land & Water Conservation	Dr Robert Smith
Dorrigo Potato Growers & Landcare Group Inc.	
Far North Coast Water Pricing Advisory Group	Mr Dennis Lambourne
Gosford-Wyong Joint Water Supply	Mr Daryl Dutton
Gunnedah Shire Council	Councillor Gae Swain
Gwydir Valley Irrigators Association	Mr John Seery
Hahn Brothers Partnership	Mrs Jan Hahn
Hassall & Associates P/L	Mr John Wurcker
Hastings Council	Mr Murray Thompson
Hastings River Water Users Group	Ms Carolyn Fowler
Hawthorne Pastoral Co	
Hunter Catchment Management Trust	Mr Glenn Evans
Hunter Valley Water Users Association	Mr Arthur Burns
Inland Rivers Network	Ms Sally Hunt
Irrigation Association of Australia	Mr Graeme Robertson
Karuah River Water-Users' Association	Mr Rob Williams
Kingdom Ponds and Tributaries Water Users Association	Mr Lloyd Rossington
L B Rossington & Son	Mr L B Rossington
Lachlan River Advisory Committee	Mr Jock H Coupland
Lower Clarence County Council	Mr I S Preston
Lower Nepean/Hawkesbury Water Users Association	Mr W McMahan
Macleay River Water Users Association	Mr David Pamplin
Macquarie Generation	Mr Grant Every-Burns
Macquarie Generation	Mr John Neely
Macquarie River Food & Fibre Association	Ms Susan Benedyka
MIA Council of Horticultural Associations Inc	Mr Roger Hoare
Moore Creek Water Catchment Management Assoc.	Mr Guy A Schaefer
Mungindi - Menindee Advisory Council Inc.	Mr Barry Strahan
Mungindi - Menindee Advisory Council Inc.	Mr Barry Strahan
Murray Irrigation Limited	Mr Bill Hetherington

**Bulk water prices for 1998/99 and 1999/00**

<b>Organisation</b>	<b>Representative</b>
Murray Valley Water Diverters Advisory Association (NSW)	Mr W R Anderson
Murrumbidgee Irrigation	Mr Cedric Hoare
Murrumbidgee Irrigation	Mr David Ledgerwood
Murrumbidgee River Management Board	Mr Rel Heckendorf
Nambucca Catchment Management Committee	Mr Michael Holton
Nambucca Shire Council	Mr B R Redman
Namoi Valley Water Users Association	Mr Jeremy Killen
Namoi Valley Water Users Association	Mr Jeremy Killen
Namoi Valley Water Users Association	Mr Jeremy Killen
Nature Conservation Council of NSW	Mr John Connor
Nature Conservation Council of NSW	Mr John Connor
Norco Co-operative Limited	Mr M C Morland
NSW Dairy Farmers Association	Ms Carolyn Fowler
NSW Dairy Farmers Association	Mr B Mark
NSW Dairy Farmers Association	Ms Tanya Stoianoff
NSW Farmers' Association	Mr Graeme J Cole
NSW Farmers' Association	Ms Kerry Pfeiffer
NSW Irrigators' Council	Mr Gary Donovan
NSW Treasury	Mr John Pierce
Nursery Industry Association of NSW	Mr Dennis Cook
Peel Valley Water Users Association	Mr Ildu Monticone
Ricegrowers' Association of Australia	Mr Mike Hedditch
Richmond & Wilson River Fresh & Tidal Water Users Association	Mr Ken Northfield
Rockdale Beef Pty Limited	Mr Paul Troja
Rockdale Beef Pty Limited	Mr Paul Troja
Rouchel Brook Water Users Association	Mr Robert T Miles
Rous County Council	Mr Paul G O'Sullivan
Stewarts River Water Users Assoc.	Mr Tim Bale
Stewarts River Water Users Assoc.	Mr Colin Sheather
Stewarts River Water Users Assoc.	Various
Stewarts River Water Users Assoc.	Various
Stewarts River Water Users Assoc.	Various
Stewarts River Water Users Assoc.	Various
Stratharlie Pastoral Company P/L	Mr Thomas Woolaston
Swanton Pastoral Company	Mr Tom Horn
Tamworth City Council	Mr Barry Pullinger
Tamworth City Council	Mr Neil Sharpham
Tarcutta Creek Water Users Association	Mr Denzel Clarke
The Yanco Creek & Tributaries Advisory Council	Mr Bruce Simpson
Toonumbar Dam Water Users' Association	Mr Gordon Bebb
Tweed Shire Council	Mr John Henley
Upper Nepean River Water Users Association	Mr John Stanham
West Crougan Private Irrigation District	Mr Peter Wallis

## Independent Pricing and Regulatory Tribunal

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Organisation	Representative
Western Murray Irrigation Ltd	Mr Anthony Couroupis
Young & District Commercial Water Users	Mr Ian Hay
Zeals Pastoral Co.	Mr W J Widin

## **APPENDIX 2 THE TRIBUNAL'S COST SHARING RATIOS**



## The Tribunal Cost Sharing Ratios for DLWC Products

Product	DLWC's description	DLWC's proposed user share	Tribunal determined user share	Tribunal rationale for cost sharing
PA 1 Surface Water Database	<p>The development and maintenance of surface water databases, incorporating ongoing, statewide data collection on the quality, quantity and use of the state's surface water.</p> <p>The database is held for both river operations and natural resource management purposes. The product includes the management of data already in the database.</p>	70%	50%	<p>The database is used by DLWC, other public and private sector bodies.</p> <p>This information is essential for DLWC to perform its role as steward and manager of water resources on behalf of the general community.</p> <p>Water users benefit from this information because DLWC is required to deliver water on regulated rivers and allow access to water on unregulated rivers.</p> <p>Other benefits are generated by way of flood warnings, land use planning (ie flood levels) and recreational water use.</p>
PA 2 Ground Water Database	<p>The development and maintenance of the ground water database, which comprises data on the quantity, quality, allocation and usage of the state's ground water.</p> <p>The information is used by DLWC and people external to the Department to assist them when making decisions about ground water resources, such as allocation and sharing.</p>	70%	70%	<p>The database is used by DLWC and other community public and private sector bodies. (Page P-5).</p> <p>This information is essential for DLWC to perform its role as steward and manager of water resources, but that role is less extensive than for surface water and rivers.</p> <p>Licensed ground water users benefit from this information because DLWC must advise them on water quality and whether extraction rates are in excess of recharge rates.</p> <p>Other, non-chargeable, ground water users benefit from DLWC's monitoring of aquifer levels to preserve access by stock and domestic bores.</p> <p>Ground water users may benefit from advice on where to locate new bores.</p>

**Independent Pricing and Regulatory Tribunal**

Product	DLWC's description	DLWC's proposed user share	Tribunal determined user share	Tribunal rationale for cost sharing
PA 3 River Health Database and Water GIS System	<p>This encompasses activities relating to the development and maintenance of a statewide database focusing on river health. It is closely linked to water quality and quantity (Products PA 1 and PA 2).</p> <p>It also includes the water Geographic Information System (GIS), which maps a wide range of catchment management information – from the location of monitoring sites and the location of water licences, to ecologically sensitive areas including wetlands.</p>	50%	0%	<p>These databases are designed to develop a statewide picture of river health and to facilitate research.</p> <p>The main beneficiaries of this Product are DLWC and other government agencies which require knowledge about water quality to carry out their statutory obligations.</p> <p>Any charges for this Product should be on a fee for service basis to the agency or individual wishing to access the information.</p>
PA 4 Water Information Products	<p>The compilation, distillation and publication of information from the water databases. Some Products are produced on a regular basis (annually), while others are produced on a needs basis. Examples are the State of the Rivers and Estuaries Reports and “Window on Water”.</p>	50%	0%	<p>This Product does not include information about how to share or deliver water (Page P-6).</p> <p>The main beneficiaries of these Products are government agencies (such as DLWC and MDBC) which require the information to carry out their statutory functions.</p> <p>Any charges for these Product should be on a fee for service basis to the agency or individual wishing to access the information.</p>

<p>PB 1 Surface Water Allocation Strategies</p>	<p>Developing and refining clear policies and statewide and regional plans for the sharing of surface water, between extractive users and ecosystem requirements.</p>	<p>90%</p>	<p>50%</p>	<p>This Product is designed to share the State's surface water resource to achieve the overall mix of social, economic and environmental outcomes most acceptable to the community (Page P-10).</p> <p>DLWC must do this work to carry out its statutory functions (which benefit the general community). Water users also require this work to best meet their demands for water within limits set by the community.</p> <p>Some benefits accrue to non-charged users and the community in terms of better environments.</p>
<p>PB2 Surface Water Licences</p>	<p>Management of licences permitting the extraction of surface water. This involves the evaluation of new licence applications, licence renewals and transfers and surveillance to ensure compliance and equity.</p>	<p>100%</p>	<p>100%</p>	<p>Licensed water users are the main beneficiaries of this work because it is required to enforce their rights to access water.</p> <p>Separate fees exist for licence renewals, transfer and applications.</p>
<p>PB 3 Ground water Allocation Strategies</p>	<p>Developing and refining clear policies and state wide and regional plans for sharing ground water between extractive users, maintenance of the aquifer and ecosystem requirements.</p>	<p>90%</p>	<p>70%</p>	<p>This Product is designed to share the State's ground water resource to achieve the overall mix of social, economic and environmental outcomes most acceptable to the community (Page P-11)</p> <p>DLWC must do this work to carry out it statutory functions (which benefits the general community), but those functions are less extensive than in surface water and rivers.</p> <p>Ground water users also require this work to best meet their demands for water within limits set by the community.</p>

## Independent Pricing and Regulatory Tribunal

<p>PB 4 Ground water Licences</p>	<p>Management of licences permitting the extraction of ground water. This involves the evaluation of new licence applications and , licence renewals and transfers and surveillance to ensure compliance and equity.</p>	<p>100%</p>	<p>100%</p>	<p>Licensed ground water users are the main beneficiaries of this work because it is required to enforce their rights to access water.</p> <p>Separate fees exist for licence renewals, transfer and applications.</p>
<p>PC 1 Rural Water Supply Strategies</p>	<p>Development of management practices and operational plans for delivering stored water resources.</p>	<p>90%</p>	<p>90%</p>	<p>This work is required to deliver water to water users on regulated rivers.</p> <p>Some non-chargeable water users obtain benefits but take only a small share (estimated at 10%) of the extracted water.</p> <p>The best proxy for the relative share of benefits is the share of extracted flow taken by each group.</p>
<p>PC 2 Rural Water Operations</p>	<p>Operational delivery of surface water and ground water, including operation of structures on regulated rivers and monitoring of water delivery.</p> <p>This Product also include billing for water use on regulated rivers, unregulated rivers and ground water.</p>	<p>90%</p>	<p>90%</p> <p>100% for billing costs</p>	<p>This work is required to deliver water to water users on regulated rivers and allow access on unregulated rivers.</p> <p>Some non-chargeable water users obtain benefits but take only a small share (estimated at 10%) of the extracted water.</p> <p>The best proxy for the relative share of benefits is the share of extracted flow taken by each group.</p> <p>Licensed water users should pay 100% of the cost of billing.</p>
<p>PC 3 Flood Operations</p>	<p>The development of plans and the operation of water storages to safeguard the long term integrity of the structures and to mitigate the social, economic and environmental impacts of floods.</p>	<p>50%</p>	<p>50%</p>	<p>This work is carried out to protect dams from being damaged by floods and to benefit flood plain residents. While considerable benefit accrues to flood plain residents, extractive users also benefit through protection of infrastructure.</p>

<p>PC 4 Rural Water Infrastructure</p>	<p>Management, maintenance and capital works associated with DLWC's rural water infrastructure (dams, weirs and related assets) to ensure their safe, reliable and efficient operation to meet the agreed needs of customers and the community.</p>	<p>90%</p>	<p>90%</p>	<p>This work is required to deliver water to water users on regulated rivers.</p> <p>Some non-chargeable water users obtain benefits but take only a small share (estimated at 10%) of the extracted water.</p> <p>The best proxy for the relative share of benefits is the share of extracted flow taken by each group.</p>
<p>PD 1 River Quality/ Flow Reforms</p>	<p>Implementation of NSW Government's August 1997 Water Reforms relating to river flow and water quality objectives to assess, restore and improve the water environment in partnership with the community.</p> <p>Includes the development of water health strategies, Weirs Policy, water quality and environmental flow plans and the installation of fishways on weirs.</p>	<p>70%</p>	<p>0%</p>	<p>DLWC performs this work to involve the community in deciding how to allocate water resources between competing uses.</p> <p>This product is undertaken as a component of government policy.</p> <p>The main beneficiary of this work is the general community (represented by the State and Federal agencies involved in the administration of water in NSW).</p> <p>DLWC will continue to set limits to the amount and timing of water use to (among other objectives) minimise the impact of water extraction on river health.</p> <p>There is no obvious reason to further increase charges to reduce water consumption below DLWC's determined limits.</p>

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<p>PD 2 Blue- Green Algae Strategies</p>	<p>The development, implementation and review of policy, plans and activities to reduce the number, intensity and impact of blue green algae outbreaks</p>	<p>50%</p>	<p>50%</p>	<p>Algal problems result from river regulation and extraction, the establishment of water storages and increased nutrient inputs from towns and agriculture.</p>
<p>PD 3 River Salinity Strategies</p>	<p>The development and implementation of policy, monitoring and audit of the MDBC Salinity and Drainage Strategy, and the development of regional plans and schemes to deal with the impacts of river salinity and arrest saline inputs into rivers.</p>	<p>50%</p>	<p>50%</p>	<p>River salinity problems result from dryland and naturally occurring salinity, river regulation, water extraction which reduces dilution factors, and irrigation practices.</p> <p>Some share of the costs of these activities is attributable to water users on the basis of polluter pays. However the relative contribution to blue-green algae and salinity problems by water users and others may vary considerably between valleys. If sufficient information were available, relative contributions to pollutant loads in rivers could be used as the proxy for how these costs should be shared.</p> <p>It may be more appropriate to recover some proportion of these costs by way of charges on discharge of nutrient-laden or saline water into rivers rather than water supply charges.</p>
<p>PD5 Ground water Management Strategies</p>	<p>Assessment of the condition of ground water resources, development and implementation of plans for maintaining, restoring and improving ground water resources in conjunction with water users and the community.</p>	<p>70%</p>	<p>70%</p>	<p>DLWC must do this work to carry out its statutory functions (which benefits the general community), but those functions are less extensive than in surface water and rivers.</p> <p>Ground water users also require this work to best meet their demands for water within limits set by the community.</p>

<p>PD 6 Wetland Strategies</p>	<p>The development of policies to assist and influence wetland management, development of regional wetland strategies and implementation and review of strategies.</p>	<p>70%</p>	<p>0%</p>	<p>DLWC performs work in these Products to carry out its statutory obligations.</p>
<p>PD 7 Water Industry Strategies</p>	<p>Development and implementation of policies, plans and strategies associated with microeconomic reforms to the broad water industry, including the corporatisation of water entities such as SWC and HWC and other reform requirements of COAG. Includes bulk rural water pricing activities (such as preparation of submissions and stakeholder consultation).</p>	<p>30%</p>	<p>0%</p>	<p>The general community is the main beneficiary of these Products (represented by agencies such as DLWC, MDBC and EPA).</p>
<p>RB 2 Environmental Planning Control</p>	<p>Provides an integrated approach to all work related to environmental review and planning processes, including requirements under the Environmental Planning and Assessment Act.</p>	<p>20%</p>	<p>0%</p>	<p>The work is undertaken as a component of government policy.</p>

## Independent Pricing and Regulatory Tribunal

RC 1 Integrated Natural Resource Management Framework	Development of strategic policy and legislation to ensure integration of natural resource management by DLWC and to ensure DLWC meets its external policy obligations.	30%	0%	DLWC performs work in these Products to carry out its statutory obligations.  The general community is the main beneficiary of these Products (represented by agencies such as DLWC, MDBC and EPA).  The work is undertaken as a component of government policy.
RC 2 Catchment Strategies	Development, implementation and review of policies and plans to help the community be actively involved in natural resource management at a catchment level. This product also involves DLWC support to community groups such as Catchment Management Committees and secretariat support to bodies such as the State Catchment Management Coordinating Committee (SCMCC).	20%	0%	
RC 3 Community Education Programs	Education and the promotion of community activity in the practices and principles of water resource management.	10%	0%	

## **APPENDIX 3 IMPACT OF DETERMINATION ON TYPICAL BILLS**



## A3.1 Regulated rivers

Table A3.1 Typical bills for 1000 ML low security licences on regulated rivers

0% usage of entitlement	1997/98	1998/99		1999/00		75% usage of entitlement	1997/98	1998/99		1999/00	
	\$	\$	Change	\$	Change		\$	\$	Change	\$	Change
Border Rivers	3,000	2,922	- 3 %	2,922	+ 0 %	Border Rivers	5,625	5,479	- 3 %	5,479	+ 0 %
Gwydir	3,000	2,738	- 9 %	2,738	+ 0 %	Gwydir	5,625	5,134	- 9 %	5,134	+ 0 %
Namoi & Peel	3,000	3,600	+ 20 %	4,320	+ 20 %	Namoi & Peel	5,625	6,750	+ 20 %	8,100	+ 20 %
Macquarie	2,000	2,400	+ 20 %	2,880	+ 20 %	Macquarie	4,025	4,830	+ 20 %	5,796	+ 20 %
Lachlan	2,100	2,520	+ 20 %	3,024	+ 20 %	Lachlan	4,050	4,860	+ 20 %	5,832	+ 20 %
Murrumbidgee	2,300	2,760	+ 20 %	3,135	+ 14 %	Murrumbidgee	2,750	3,300	+ 20 %	3,749	+ 14 %
Murray (incl Lower Darling)	2,300	2,760	+ 20 %	3,312	+ 20 %	Murray (incl Lower Darling)	2,750	3,300	+ 20 %	3,960	+ 20 %
Hunter	2,200	2,640	+ 20 %	3,168	+ 20 %	Hunter	4,075	4,890	+ 20 %	5,868	+ 20 %
Toonumbar	3,000	3,600	+ 20 %	4,320	+ 20 %	Toonumbar	4,500	5,400	+ 20 %	6,480	+ 20 %
Brogo	3,000	3,600	+ 20 %	4,320	+ 20 %	Brogo	4,500	5,400	+ 20 %	6,480	+ 20 %

25% usage of entitlement	1997/98	1998/99		1999/00		100% usage of entitlement	1997/98	1998/99		1999/00	
	\$	\$	Change	\$	Change		\$	\$	Change	\$	Change
Border Rivers	3,875	3,774	- 3 %	3,774	+ 0 %	Border Rivers	6,500	6,331	- 3 %	6,331	+ 0 %
Gwydir	3,875	3,537	- 9 %	3,537	+ 0 %	Gwydir	6,500	5,932	- 9 %	5,932	+ 0 %
Namoi & Peel	3,875	4,650	+ 20 %	5,580	+ 20 %	Namoi & Peel	6,500	7,800	+ 20 %	9,360	+ 20 %
Macquarie	2,675	3,210	+ 20 %	3,852	+ 20 %	Macquarie	4,700	5,640	+ 20 %	6,768	+ 20 %
Lachlan	2,750	3,300	+ 20 %	3,960	+ 20 %	Lachlan	4,700	5,640	+ 20 %	6,768	+ 20 %
Murrumbidgee	2,450	2,940	+ 20 %	3,340	+ 14 %	Murrumbidgee	2,900	3,480	+ 20 %	3,953	+ 14 %
Murray (incl Lower Darling)	2,450	2,940	+ 20 %	3,528	+ 20 %	Murray (incl Lower Darling)	2,900	3,480	+ 20 %	4,176	+ 20 %
Hunter	2,825	3,390	+ 20 %	4,068	+ 20 %	Hunter	4,700	5,640	+ 20 %	6,768	+ 20 %
Toonumbar	3,500	4,200	+ 20 %	5,040	+ 20 %	Toonumbar	5,000	6,000	+ 20 %	7,200	+ 20 %
Brogo	3,500	4,200	+ 20 %	5,040	+ 20 %	Brogo	5,000	6,000	+ 20 %	7,200	+ 20 %

Table A3.1 Typical bills for 1000 ML low security licences on regulated rivers, cont'd

50% usage of entitlement	1997/98	1998/99		1999/00		120% usage of entitlement	1997/98	1998/99		1999/00	
	\$	\$	Change	\$	Change		\$	\$	Change	\$	Change
Border Rivers	4,750	4,627	- 3 %	4,627	+ 0 %	Border Rivers	7,200	7,013	- 3 %	7,013	+ 0 %
Gwydir	4,750	4,335	- 9 %	4,335	+ 0 %	Gwydir	7,200	6,571	- 9 %	6,571	+ 0 %
Namoi & Peel	4,750	5,700	+ 20 %	6,840	+ 20 %	Namoi & Peel	7,200	8,640	+ 20 %	10,368	+ 20 %
Macquarie	3,350	4,020	+ 20 %	4,824	+ 20 %	Macquarie	5,240	6,288	+ 20 %	7,546	+ 20 %
Lachlan	3,400	4,080	+ 20 %	4,896	+ 20 %	Lachlan	5,220	6,264	+ 20 %	7,517	+ 20 %
Murrumbidgee	2,600	3,120	+ 20 %	3,544	+ 14 %	Murrumbidgee	3,020	3,624	+ 20 %	4,117	+ 14 %
Murray (incl Lower Darling)	2,600	3,120	+ 20 %	3,744	+ 20 %	Murray (incl Lower Darling)	3,020	3,624	+ 20 %	4,349	+ 20 %
Hunter	3,450	4,140	+ 20 %	4,968	+ 20 %	Hunter	5,200	6,240	+ 20 %	7,488	+ 20 %
Toonumbar	4,000	4,800	+ 20 %	5,760	+ 20 %	Toonumbar	5,400	6,480	+ 20 %	7,776	+ 20 %
Brogo	4,000	4,800	+ 20 %	5,760	+ 20 %	Brogo	5,400	6,480	+ 20 %	7,776	+ 20 %

### A3.2 Unregulated rivers

**Table A3.2 Typical bills for area based licences (irrigation)**

Licence area	12 ha or less	40 ha	162 <sup>1</sup>	600 ha and over <sup>2</sup>
1996/97	80	125	250	250
1997/98	50	150	608	2000
1998/99	54	180	730	2,700 to 27,000
1999/00	65	216	876	3,240 to 32,400

- 24 water users (from a total of 8,669 on unregulated rivers) hold licences of 324 or 486 hectares. Their typical bills are multiples of the bill for a 162 hectare licence.
- 35 water users (from 8,669) hold licences of between 600 and 6000 hectares. Their typical bills are capped at \$2000 for 1997/98.
- From 1998/99 onwards, all water users on unregulated rivers may install a meter (at their own expense) approved by DLWC and be charged at the usage rates in the following table A3.3. Depending on water usage, this is likely to result in significantly reduced water bills.

**Table A3.3 Typical bills for metered usage**

ML usage	1997/98	1998/99		1999/00	
	\$	\$	% change	\$	% change
Average use (524 ML)	\$346	\$414	+ 20 %	\$493	+ 19 %
10	\$105	\$106	+ 1 %	\$108	+ 1 %
50	\$124	\$130	+ 5 %	\$138	+ 6 %
200	\$194	\$220	+ 13 %	\$250	+ 14 %
500	\$335	\$400	+ 19 %	\$475	+ 19 %
2000 <sup>1</sup>	\$1,040	\$1,300	+ 25 %	\$1,600	+ 23 %
10000 <sup>2</sup>	\$4,800	\$6,100	+ 27 %	\$7,600	+ 25 %

- A small number of larger local councils (20 from a total of 182) user greater than 2,000 ML according to available water metering data. These larger users will get bill increases of greater than 20 percent to reflect their proportionately greater requirement for resource management services.
- Only Rous County Council, Shoalhaven Council, Wyong Shire Council and Gosford Council are estimated to use greater than 10,000 ML per annum.

### A3.3 Ground water

**Table A3.4 Typical bills for ground water use**

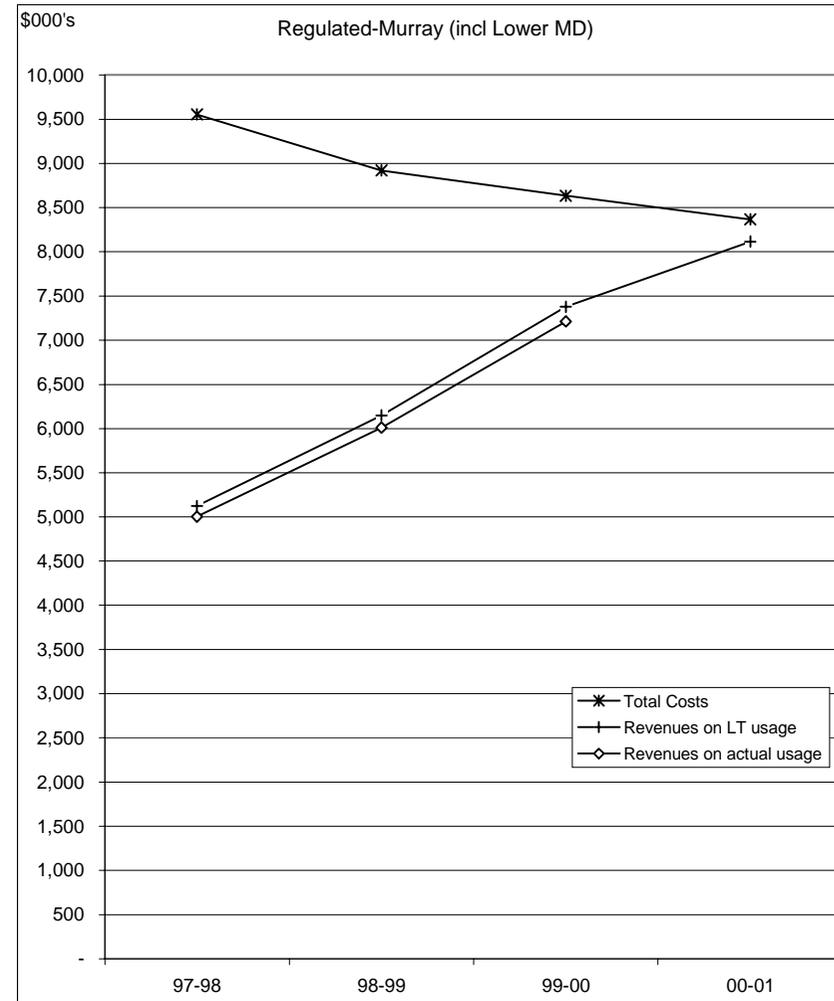
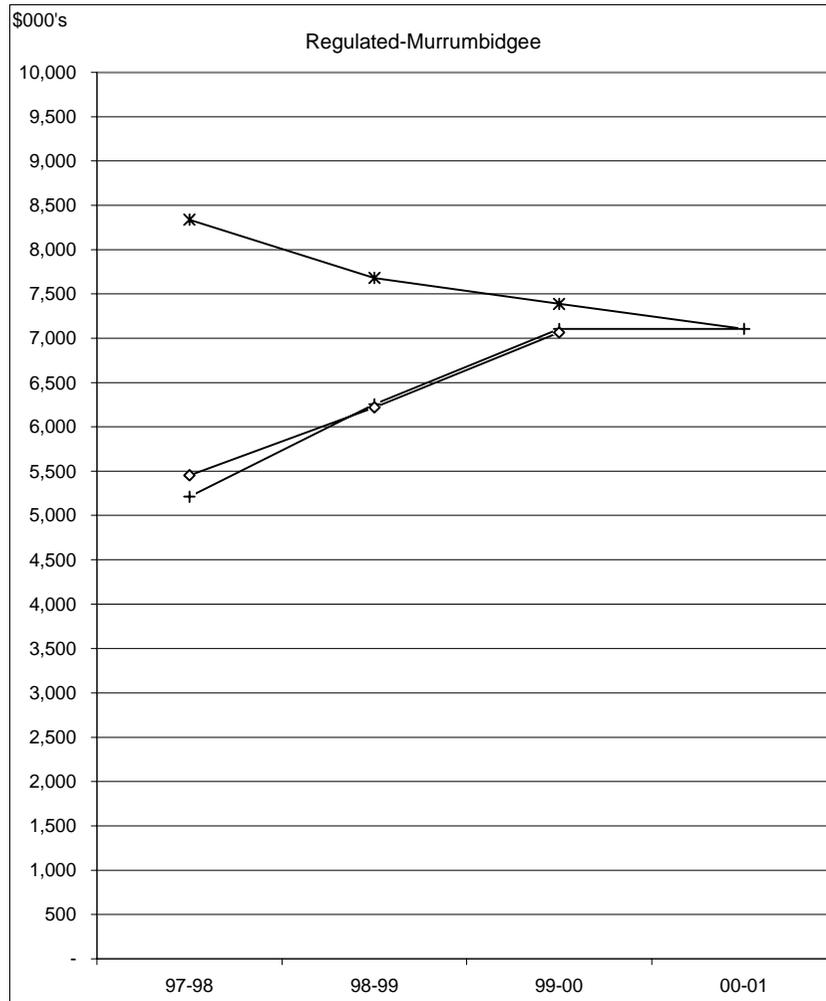
20 ML Licence	1997/98	1998/99		1999/00	
	\$	\$	% change	\$	% change
Non management area	75	85	+ 13 %	87	+ 2 %
Management area	100	114	+ 14 %	116	+ 2 %
<b>200 ML Licence</b>					
Non management area	147	175	+ 19 %	195	+ 11 %
Management area	196	235	+ 20 %	262	+ 11 %
<b>1000 ML Licence</b>					
Non management area	467	575	+ 23 %	675	+ 17 %
Management area	628	775	+ 23 %	910	+ 17 %

- Water use is only reliably metered in management areas.
- Actual bills vary with water usage. Bills calculated assuming usage of 70 percent of entitlement.

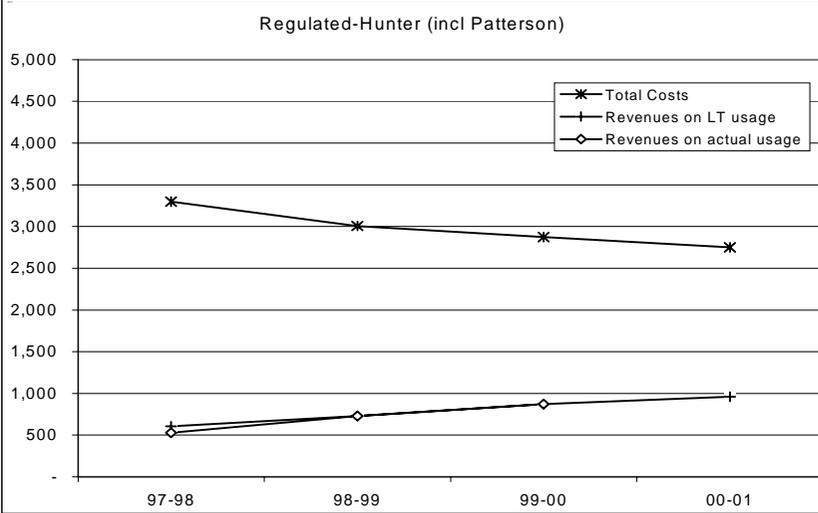
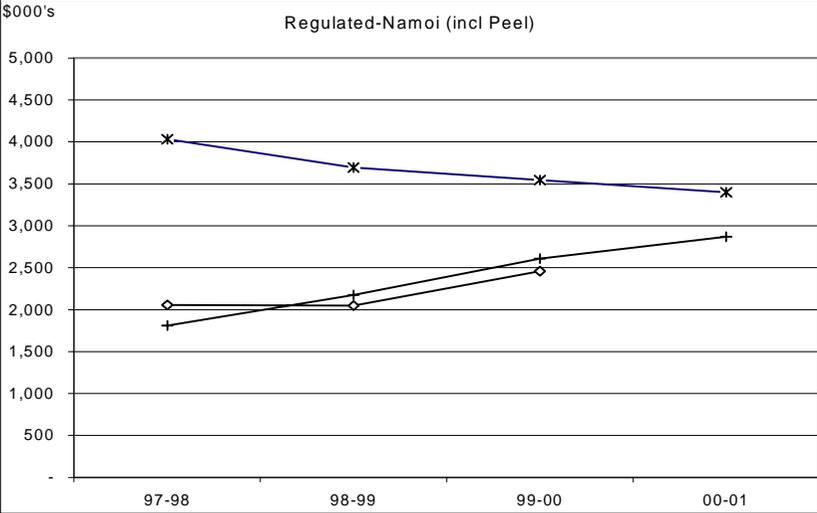
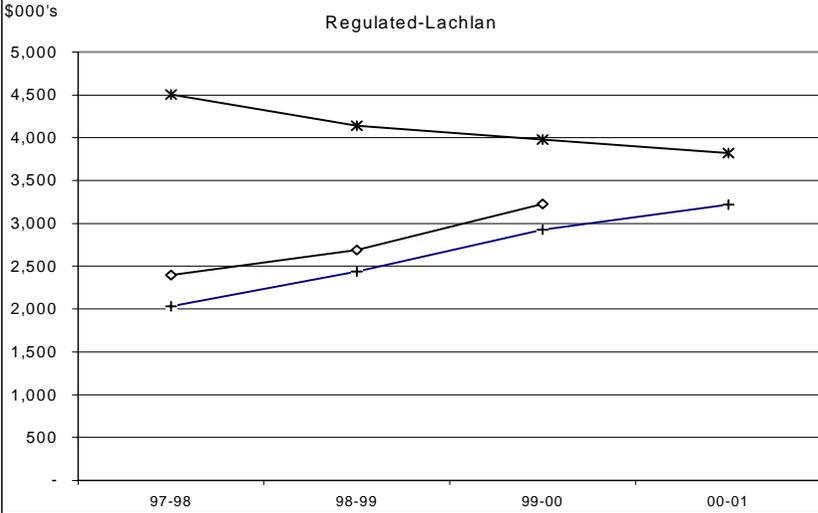
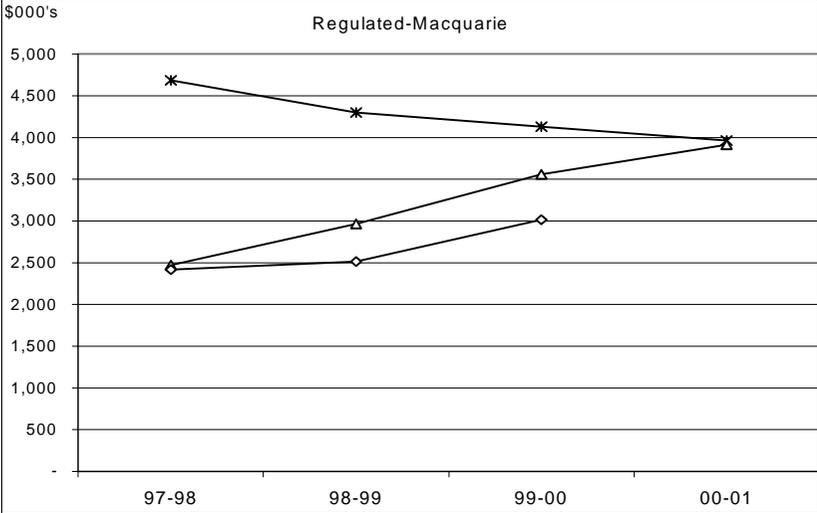


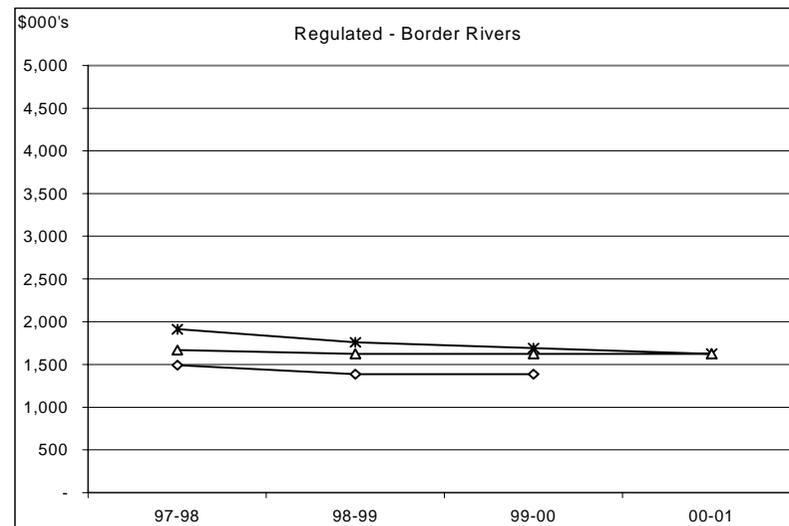
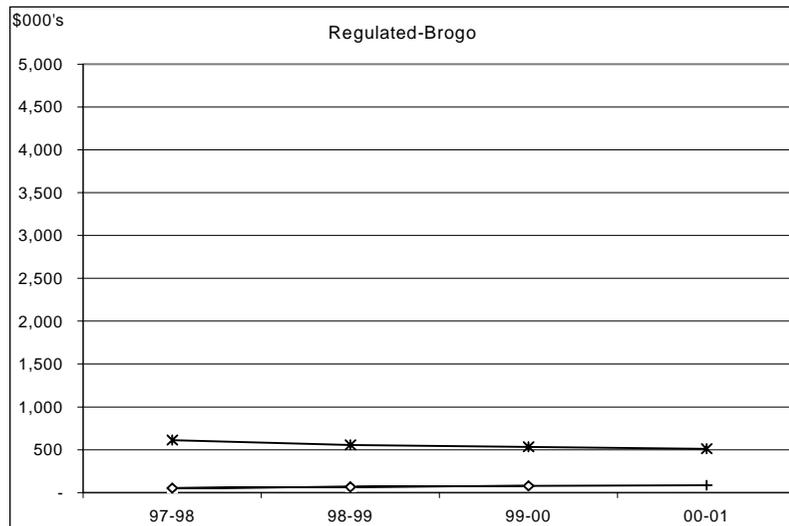
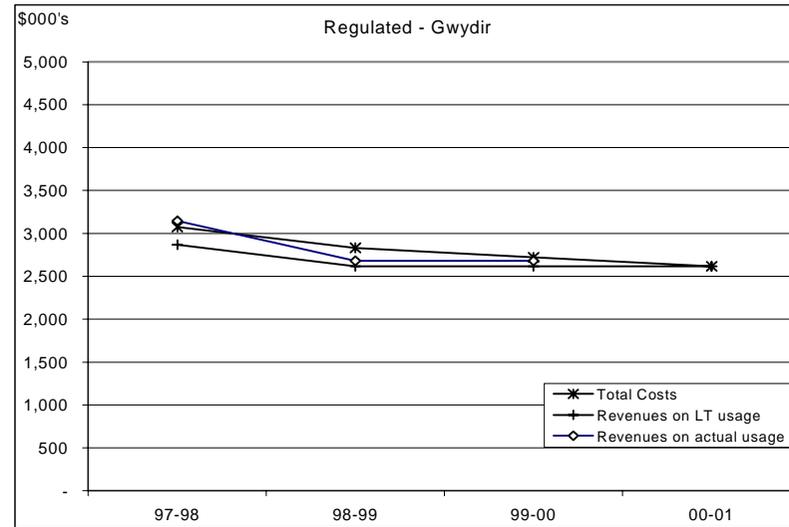
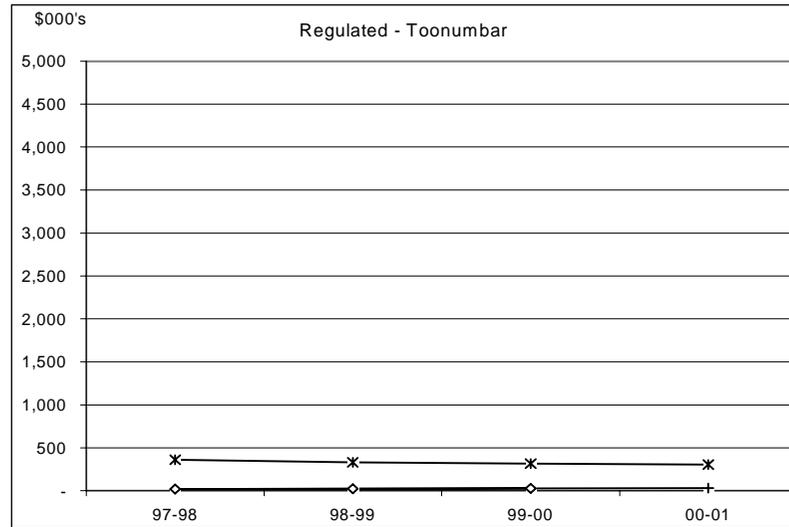
**APPENDIX 4 GRAPHS SHOWING REGIONAL PROGRESS TO COST  
RECOVERY**



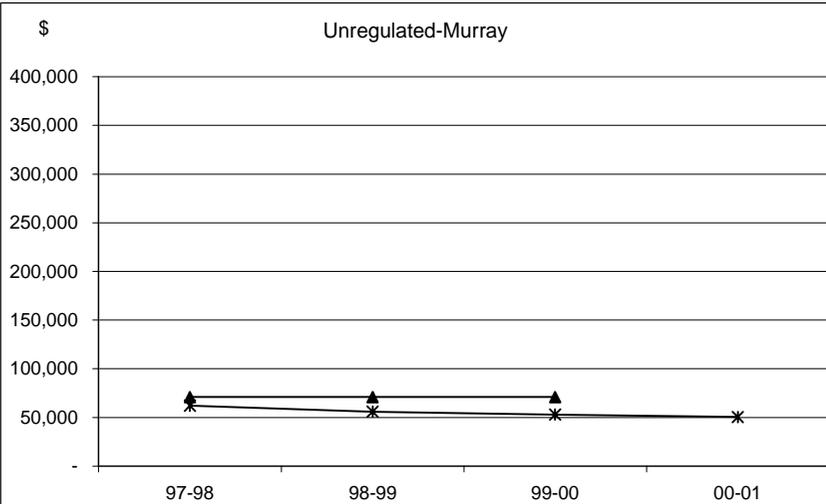
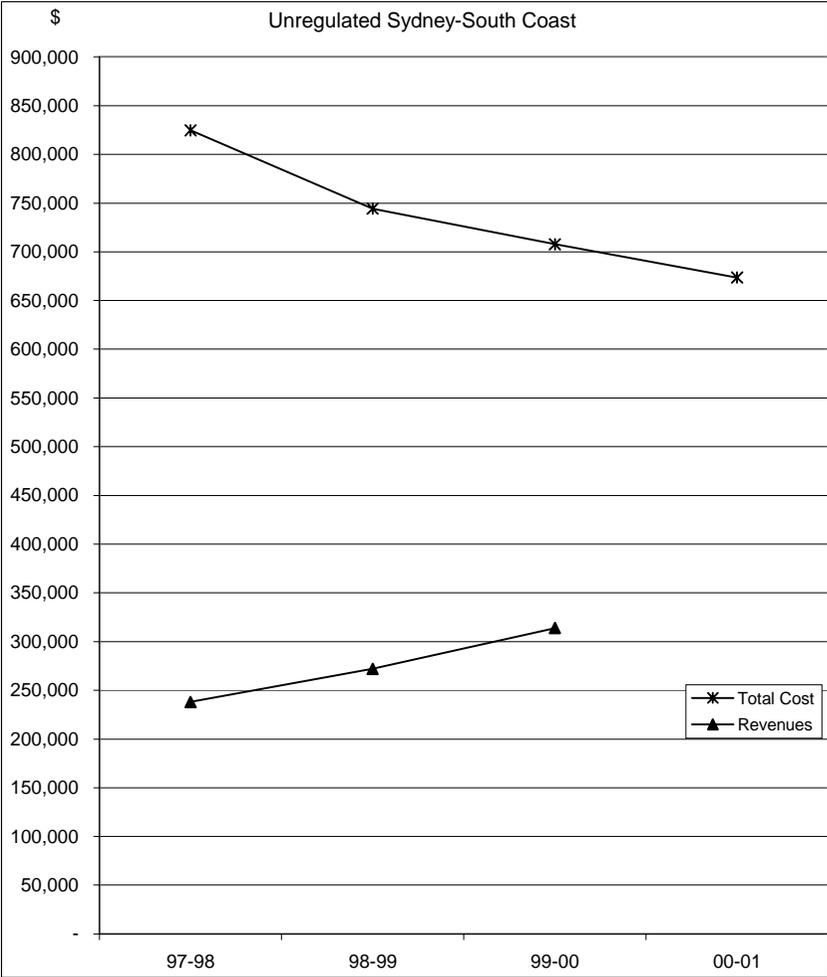
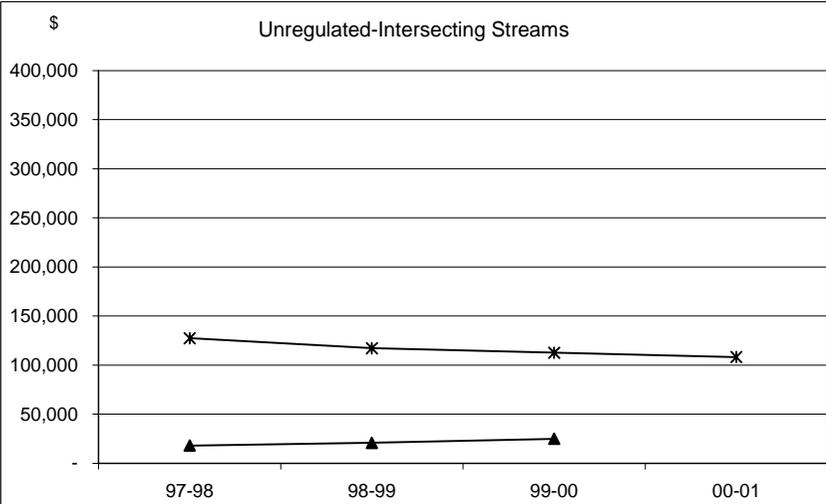


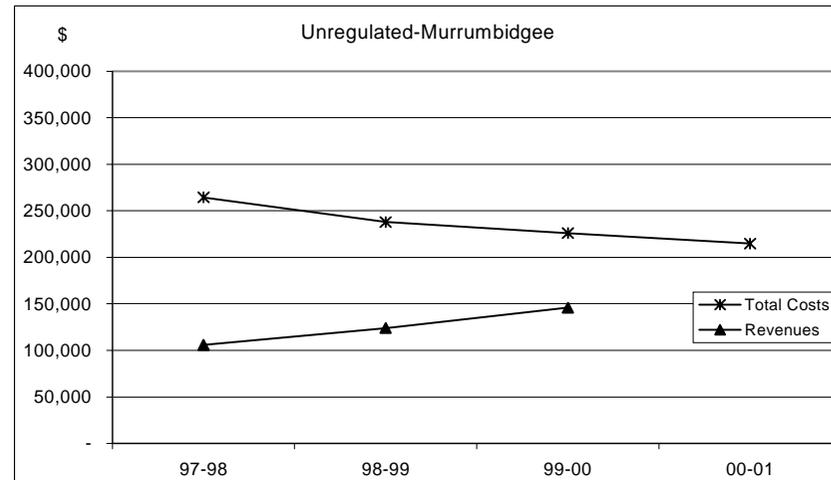
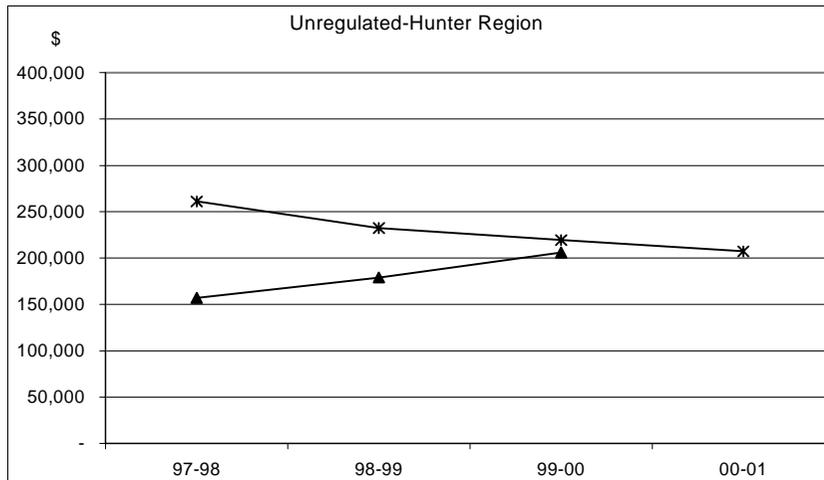
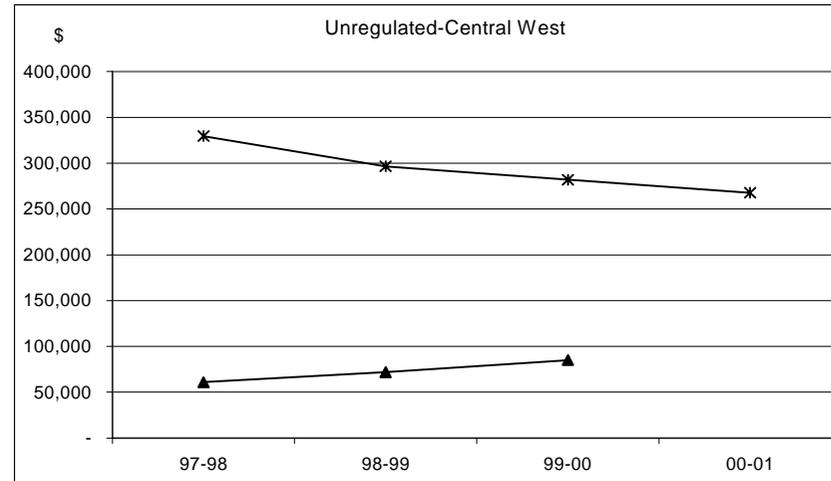
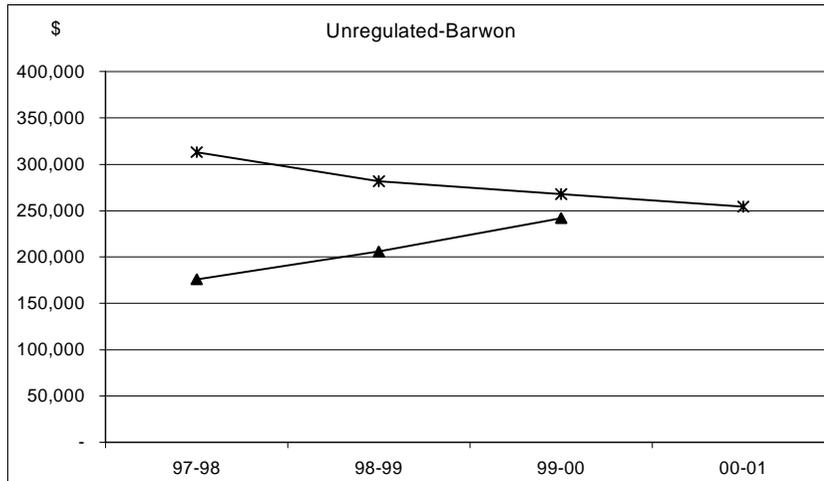
**Independent Pricing and Regulatory Tribunal**



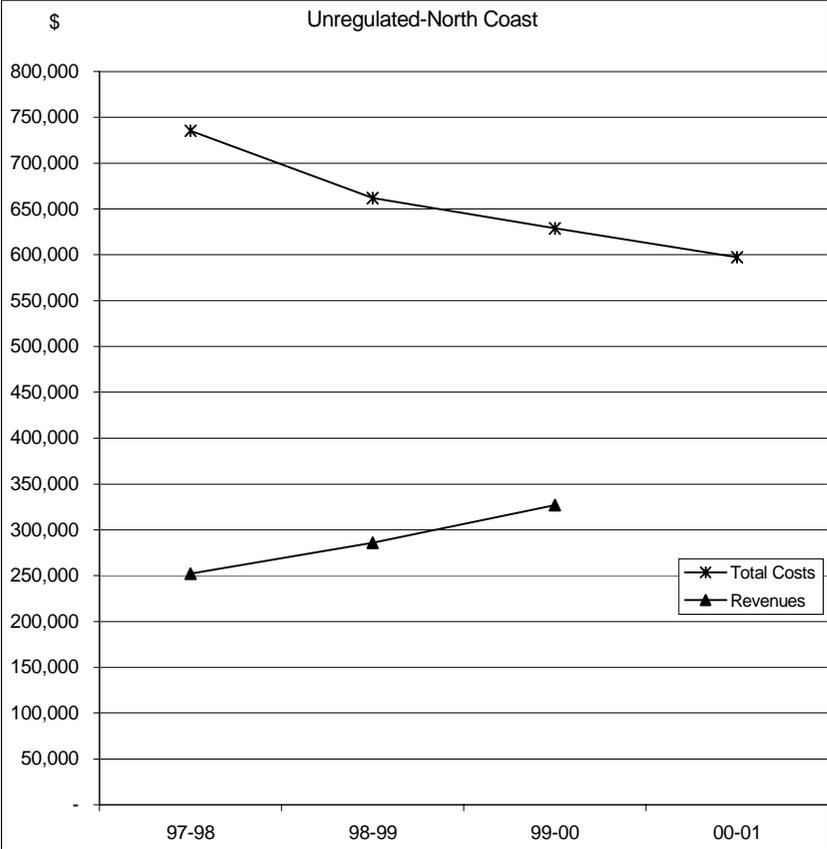
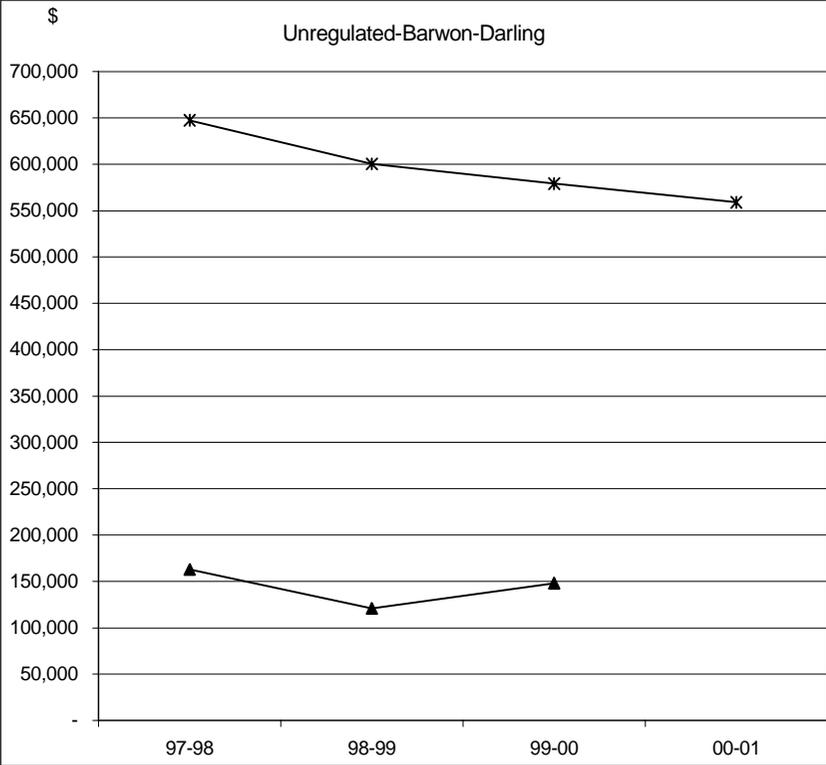


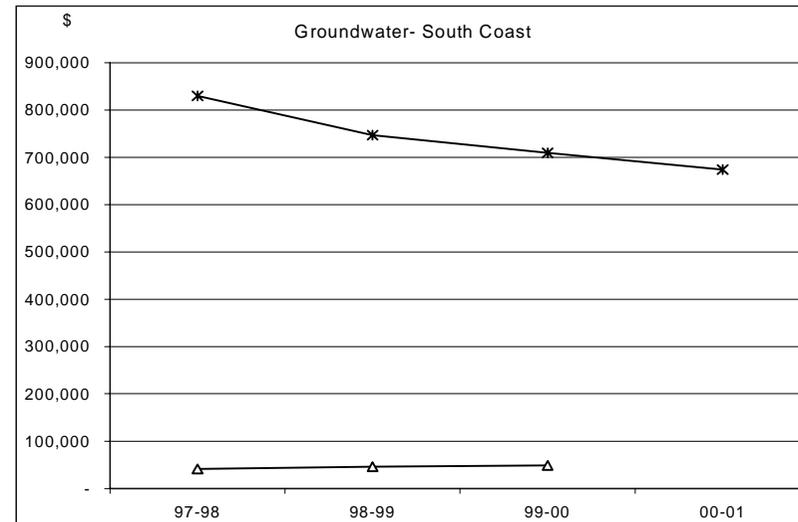
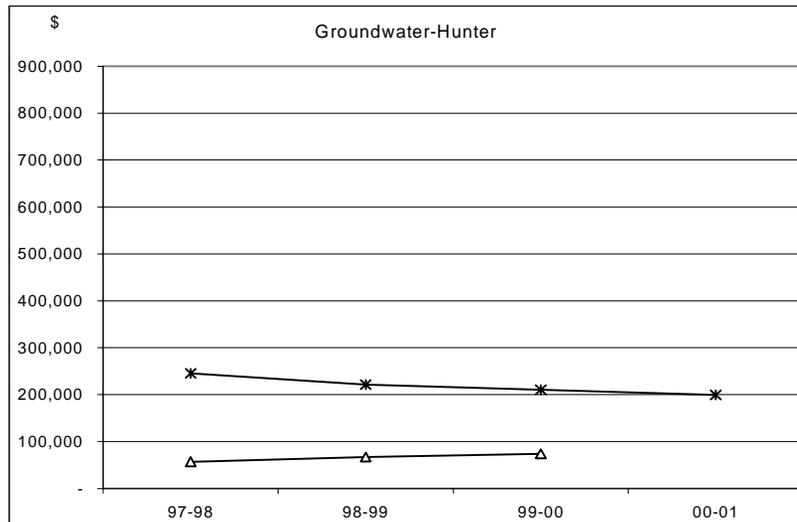
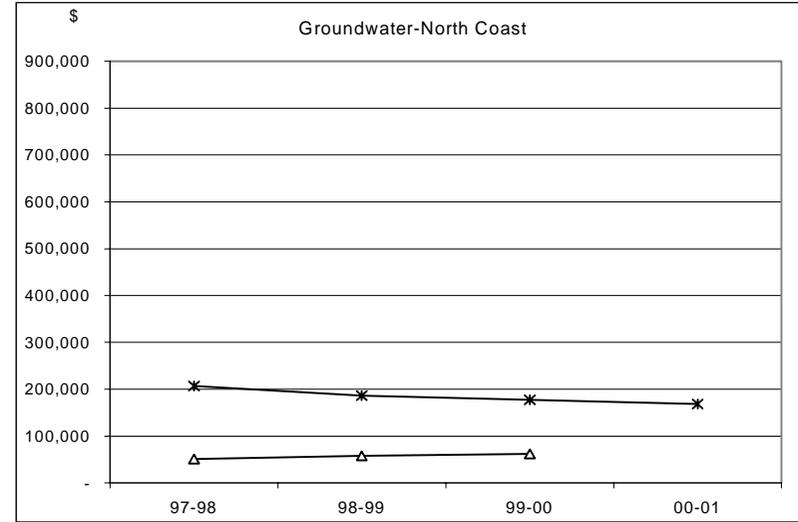
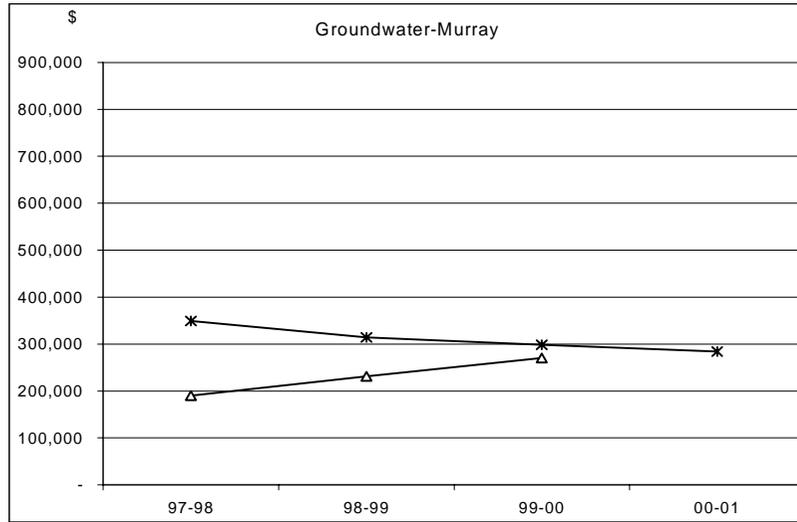
**Independent Pricing and Regulatory Tribunal**





Independent Pricing and Regulatory Tribunal





**Independent Pricing and Regulatory Tribunal**

