Pricing of
Water, Sewerage and Stormwater Services

Sydney Water Corporation
Hunter Water Corporation
Gosford City Council
Wyong Shire Council
Sydney Catchment Authority

Issues Paper

INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES

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Issues Paper

Discussion Paper DP-37 October 1999

Submissions

Public involvement is an important element of the Tribunal's processes. The Tribunal therefore invites submissions from interested parties to all of its investigations.

There is no standard format for preparation of submissions, however, submissions should have regard to the specific issues that have been raised. Submissions should be made in writing and, if they exceed 15 pages in length, should also be provided on computer disk in word processor, PDF or spreadsheet format.

Confidentiality

Special reference must be made to any issues in submissions for which confidential treatment is sought and all confidential parts of submissions must be clearly marked. *However, it is important to note that confidentiality cannot be guaranteed as the Freedom of Information Act and section 22A of the Independent Pricing and Regulatory Tribunal Act provide measures for possible public access to certain documents.*

Public access to submissions

All submissions that are not subject to confidentiality will be made available for public inspection at the Tribunal's offices immediately after registration by the Tribunal and also via the Tribunal's website. Transcriptions of public hearings will also be available.

Public information about the Tribunal's activities

A range of information about the role and current activities of the Tribunal, including copies of latest reports and submissions can be found on the Tribunal's website at www.ipart.nsw.gov.au

Submissions on the issues raised in this paper should be received no later than 4 February 2000. The water agencies are to provide submissions by 20 December 1999.

Comments or inquiries regarding this review should be directed to:
Michael Seery ☎ (02) 9290 8421 or Libby Marstrand ☎ (02) 9290 8463

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GLOSSARY

ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
BOO	build own operate
CAPM	capital asset pricing model
CNP	Competitive Neutrality Policy
COAG	Council of Australian Governments
CPI	consumer price index
CSO	community service obligation
DLWC	Department of Land and Water Conservation
DORC	depreciated optimised replacement cost
DSP	development servicing plan
DUAP	Department of Urban Affairs and Planning
EPA	Environment Protection Authority
EPA	Environment Protection Authority
ESD	ecologically sustainable development
GST	Goods and Services Tax
HCMT	Hunter Catchment Management Trust
IPART	Independent Pricing and Regulatory Tribunal
LRMC	long run marginal cost
NCC	National Competition Council
NCP	National Competition Policy
NHMRC	National Health and Medical Research Council
NPV	net present value
Ofwat	Office of Water Services (UK)
ORG	Office of the Regulator General (Victoria)
RAB	regulatory asset base
REP	Regional Environment Plan
SOC	State Owned Corporation
WACC	weighted average cost of capital

Summary of Major Issues

Revenue

- What revenue levels are required by the agencies to:
  a) operate at an efficient cost level
  b) provide water, sewerage and drainage services at an appropriate standard of service
  c) undertake its roles, functions and objectives, as legislated?

Prices

- From whom should that revenue be sourced and how should prices be structured?
- Should prices vary by region and by season and what reliance should be placed on charge for use?
- What are the potential social and ecological impacts of pricing?

Costs

- Are the agencies cost-efficient, and if not by how much?

Form of Regulation

- How intrusive should the Tribunal be in determining the maximum prices that are able to be charged for individual services?
- What is the best form of regulation that the Tribunal should adopt to maximise the incentives for the agencies to operate at an efficient cost level while at the same time allowing customers to share in the benefits of any efficiency improvements?

1 INTRODUCTION

In June 1996, the Independent Pricing and Regulatory Tribunal (IPART) determined maximum prices for water, sewerage and drainage services charged by Sydney Water Corporation (Sydney Water), Hunter Water Corporation (Hunter Water), Gosford City Council (Gosford Council) and Wyong Shire Council (Wyong Council). The price paths for Sydney Water and Hunter Water were for four years to 1999/2000. The price paths for Gosford Council and Wyong Council were for three years only, and expired on 30 June 1999.

So that all water agencies would be reviewed at the same time, in May 1999, the Tribunal released annual determinations for Gosford Council and Wyong Council. Appendix A summarises the recent determinations relating to each agency.

The Tribunal is conducting a medium term price path review of the maximum charges to apply from 1 July 2000 for each of the four metropolitan water supply authorities. The maximum charges determined by Tribunal will cover a four or five year period. This review is being conducted under Section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992*.

Since the last round of medium term price path determinations, the Government has created the Sydney Catchment Authority (the Catchment Authority). The Catchment Authority has taken over certain functions of Sydney Water related to bulk water supply and, in addition, has a broader catchment management role.

On 23 August 1999, the Premier requested that the Tribunal conduct an investigation under section 12(1)(a) of the IPART Act and make a determination for a five year price path for the Catchment Authority. The draft terms of reference are provided in Appendix B. The Tribunal will review the pricing of the Catchment Authority's supply to Sydney Water in conjunction with the review of the four metropolitan water suppliers.

The Tribunal is currently reviewing the terms of the operating licences of Sydney Water and the Catchment Authority. In April 1999, the Premier requested, under section 9 of the IPART Act, that the Tribunal recommend the terms of new operating licences to take effect from 1 January 2000.

1.1 Review process

Public involvement is essential to the Tribunal's processes. The Tribunal is keen to ensure that the medium term price path for each agency results from a full and open debate on the issues. The Tribunal invites public submissions and will hold a public hearing concerning the issues.

The timetable for the medium term price path review is:

Action	Timetable
Release of issues paper	October 1999
Water agency submissions	20 December 1999
Public submissions	4 February 2000
Public Hearing	Early March 2000
Interim report	May 2000
Final Report	3rd quarter 2000

During the course of the review, the Tribunal will hold stakeholder meetings and will conduct a public forum.

Before proceeding with the investigation of the Catchment Authority's prices, the Tribunal must finalise the Terms of Reference. The draft terms were advertised on 10 September 1999. Comments closed on 30 September. The Tribunal will advertise final terms of reference shortly.

1.2 Purpose of this issues paper

This issues paper is intended to help the water agencies and interested parties prepare submissions to this price review. The paper explains how the price review will be undertaken, provides background on the water industry, and identifies issues on which the Tribunal seeks input and public comments. The issues raised in this paper are those the Tribunal considers to be relevant for assessing potential water, sewerage and drainage charges. However, the Tribunal welcomes submissions on any issues relevant to pricing that interested parties believe should be addressed.

1.3 How to make submissions

There is no standard format for the preparation of submissions, but reference should be made to relevant issues. Submissions should be made in writing and, if they exceed 15 pages in length, should also be provided on computer disk in word processor, PDF or spreadsheet format.

Special reference must be made to any issues in submissions for which confidential treatment is sought and all confidential parts of submissions must be clearly marked. However, it is important to note that confidentiality cannot be guaranteed as the *Freedom of Information Act* and section 22A of the *Independent Pricing and Regulatory Tribunal Act* provide measures for possible public access to certain documents.

Submissions should be sent to:

Water Medium Term Price Path Review
Independent Pricing and Regulatory Tribunal of New South Wales
PO Box Q290
QVB Post Office NSW 1230

The Tribunal may be contacted by email at ipart@ipart.nsw.gov.au or michael_seery@ipart.nsw.gov.au

1.4 Matters to be considered

This issues paper deals with two separate but related inquiries. The Tribunal has initiated the inquiry into the pricing of the metropolitan water supply agencies under Section 11 of the Independent Pricing and Regulatory Act.[1] There are no specific terms of reference for

[1] Each of the four metropolitan water supply agencies has a standing reference under Schedule 1 of the IPART Act. That means the Tribunal may initiate an investigation into prices without the need for a reference from the Premier. On the other hand SCA is not listed in Schedule 1 of the Act and the Premier must initiate a review.

this review. By contrast, the Premier has proposed terms of reference for the review of the Catchment Authority.

In making its determination, the Tribunal is guided by the *Independent Pricing and Regulatory Tribunal Act 1992*. In this regard, Section 15 of the Act requires that the Tribunal consider various matters. Section 15 is set out in full in Appendix C. These matters are grouped as follows:

Consumer protection

- prices, pricing policies and standards of service
- general price inflation
- social impact of decisions.

Economic efficiency

- greater efficiency in the supply of services
- effect of functions being carried out by another body
- the need to promote competition.

Financial viability

- rate of return on public sector assets including dividend requirements
- impact on pricing of borrowing, capital and dividend requirements of agencies.

Environmental and other standards

- protection of the environment by appropriate pricing policies
- considerations of demand management
- standards of quality, reliability and safety.

Interested parties may wish to address these matters in their submissions. Further discussion about each of these matters is provided in sections 4, 5 and 6 of this paper.

1.5 Summary of key issues

A list of all the issues being addressed and the matters on which the Tribunal is seeking comment is summarised in section 9 of this paper. These issues are discussed in detail in sections 2 to 8. Interested parties are encouraged to comment on questions raised in relation to these issues, and to provide information and commentary on any additional matters which may seem relevant. This does not imply that any one party is required to comment on the full range of issues. Box 1 summarises the major issues and concepts being considered in this review.

Box 1 – Summary of Major Issues

Revenue

- What revenue levels are required by the agencies to:
  a) operate at an efficient cost level
  b) provide water, sewerage and drainage services at an appropriate standard of service
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Specific issues which arose during previous investigations of the four water authorities are discussed in section 7.

2 INDUSTRY STRUCTURE AND REGULATORY ENVIRONMENT

2.1 Industry Structure

Four metropolitan water agencies supply water and provide sewerage and drainage services to the NSW urban areas. The region they supply stretches from south of Wollongong to north of Newcastle. Sydney Water serves the Illawarra region, Blue Mountains and Greater Sydney. The two local councils (Gosford and Wyong) supply water and sewerage services to their own communities on the Central Coast. Hunter Water operates its own dams and water sources and provides water to the areas around Newcastle including Port Stephens, Maitland and Cessnock. Appendix D contains maps of each of the metropolitan agencies' service areas.

Since July 1999, the Catchment Authority has been responsible for managing the catchment and supplying bulk water to Sydney Water and to several local councils and customers who draw water direct from its infrastructure. The Catchment Authority does not supply bulk water to the water agencies in Gosford, Wyong and the Hunter Valley.

The size of operation of the four metropolitan water suppliers varies significantly (see Table 2.1). Asset values represent the value at which each agency's assets have been included in its books, and do not necessarily represent the value used for pricing and regulatory purposes.

Table 2.1 Customer profile and revenue base ($m), 1997/98

	Sydney Water	Hunter Water	Gosford	Wyong
Operating area (sq km)	13,000	5,400	1,028	827
Estimated population	3,899,350	476,073	140,991	125,300
No of properties (including vacant properties)	1,527,300	189,938	61,383	51,598
Tariff income	1,093.2	116.7	40.4	30.9
Asset value (written down replacement cost)	13,181.0	1,907.5	527.7	504.2

Source: Utilities' annual information returns. A consolidated view is used for all entities.

The overall structure and responsibilities of each of the water agencies are illustrated in Table 2.2.

2.1.1 Sydney Water Corporation

Sydney Water provides water and sewer services to the Sydney metropolitan area, the Blue Mountains and the Illawarra region. It also provides stormwater (drainage) services to a smaller area within Sydney. Much of Sydney's bulk water is sourced from the catchment to the south and west of Sydney. This is now managed and operated by the Catchment Authority.

Table 2.2 Functions of water agencies

Function	Sydney Water	Hunter Water	Gosford Council	Wyong Council
Bulk water supply	the Catchment Authority	DLWC	DLWC	DLWC
- dam operations	the Catchment Authority	HCMT*	Gosford/Wyong Joint water supply authority	Gosford/Wyong Joint water supply authority
Treatment plants	BOO plant privately owned plus Sydney Water plants	Hunter Water	Joint water supply authority	Joint water supply authority
Distribution and retail	Sydney Water	Hunter Water	Gosford Council	Wyong Council
Sewerage	Sydney Water	Hunter Water	Gosford Council	Wyong Council
Stormwater	Sydney Water & local councils	Hunter Water & local councils	Gosford Council	Wyong Council

* Hunter Catchment Management Trust.

In 1995, the Sydney Water Board was corporatised, becoming a company state owned corporation (SOC) under the *State Owned Corporations Act 1989*. As a company SOC, Sydney Water was bound by corporations law.

When Sydney Water was incorporated, the Government granted the Corporation a five year operating licence to provide water, sewerage and some stormwater services to Greater Sydney, the Illawarra and the Blue Mountains. The operating licence sets minimum operating and customer standards of service for water quality, reliability, pressure and sewage surcharges. It also outlines compliance requirements for other regulators such as the Tribunal, the EPA, and Department of Health.

An independent licence regulator audits compliance aspects of the operating licence through an annual operational audit. The Licence regulator is a statutory body constituted under the *Sydney Water Act 1994* with five part-time members appointed by the Government.[2] The function of the Licence Regulator is to ensure that an operational audit is undertaken in accordance with the operating licence. The Licence Regulator's unit currently sits within the Ministry of Energy and Utilities.

Sydney Water has a customer contract which sets out the rights and obligations of customers and of Sydney Water, including customer complaint handling procedures and rights of redress if there is a failure to provide the agreed level of service. The operating licence requires Sydney Water to establish one or more customer councils to:

> … enable community involvement in issues relevant to the exercise of Sydney Water's obligations under this Licence through a process of consultation. These customer councils are to include the corporate Customer Council and Regional Customer Councils as established from time to time.[3]

2 *Sydney Water Act 1995*, Section 30.
3 SWC Operating Licence, Section 4.11.

In 1998 the Sydney Water Inquiry headed by Peter McClellan QC investigated water quality incidents experienced by Sydney Water between July and September 1998. The main findings of the inquiry were firstly, that Sydney Water's catchments were seriously compromised by many possible sources of contamination, and secondly that Sydney Water did not have sufficient regulatory control of the catchments to guarantee safe drinking water. Following the inquiry, the Government implemented changes including reconstituting Sydney Water as a statutory SOC, and separating the catchment and dam management functions of Sydney Water from the water distribution and retail supply functions. As a statutory SOC, Sydney Water is not longer bound by corporations law and there is greater scope for ministerial direction from the portfolio minister.[4]

New operating licences for both Sydney Water and the newly created Catchment Authority are expected to take effect from 1 January 2000. The Premier has requested under Section 9 of the IPART Act, that the Tribunal recommend the terms of the new operating licences.

2.1.2 The Sydney Catchment Authority

The Catchment Authority was established under the *Sydney Water Catchment Management Act 1998* and commenced operation on 2 July 1999. The Catchment Authority's responsibilities are to:

- protect the catchments
- protect and enhance the quality of water harvested in its catchments
- supply bulk water
- undertake research on catchments generally
- undertake an educative role within the community
- regulate activities within the catchment areas in order to:
  - improve water quality
  - protect public health
  - safeguard the environment.

The Catchment Authority's board reports to the Minister for the Environment.

Catchments protected by the Catchment Authority are the dams at Avon, Cataract, Cordeaux, Nepean, Tallowa, Woronora, Warragamba, Blue Mountains and Wingecarribee, and the Reservoir at Fitzroy Falls.

The Catchment Authority provides water to the inlet of each of Sydney Water's filtration plants, including those owned and operated by private operators under a Build Own Operate (BOO) scheme. It also provides water to other water supply authorities, local councils, county councils and several other customers who draw water direct from its infrastructure.

The Catchment Authority's ability to harvest, store and transport bulk water is intended to be licensed by DLWC under the *Water Act 1912*, as amended.

4 Currently the Minister for Energy and Minister for Western Sydney.

Sydney Water's licence regulator is also the auditor for the Catchment Authority.[5] The *Sydney Water Catchment Management Act 1998* requires the preparation of a Regional Environment Plan (REP) to make provisions for imposing controls on development, setting water quality objections and action plans to rectify any development that does not have a neutral or beneficial effect on water quality.[6]

The REP will be the longer term planning response to the issues related to drinking water catchments. The REP will focus on:

- water quality protection
- catchment protection
- ecologically sustainable land use.

The Department of Urban Affairs and Planning (DUAP) has released a discussion paper on the preparation of the REP.[7] Under the *Sydney Water Catchment Management Act 1998,* the Licence Regulator must monitor and report on the Catchment Authority's compliance with the provisions of the REP.[8] In releasing the discussion paper, DUAP anticipated that a draft REP would be exhibited by the end of 1999, with a final REP in place by mid 2000.

The Catchment Authority is also required to conduct a catchment audit by the end of 1999 to enable it to compile appropriate indicators and help focus research on the ecological health of the catchments. Further, the Authority's Operating Licence requires it to establish a Community Consultative Committee, with objectives similar to Sydney Water's Customer Councils.

2.1.3 Hunter Water Corporation

Hunter Water is responsible for providing water from dam to tap. Hunter Water provides water and wastewater services to people from five local government areas in the Lower Hunter Region, including the Cities of Newcastle, Lake Macquarie, Maitland and Cessnock and Port Stephens Shire, an area of approximately 5,400 sq km. Hunter Water also supplies bulk water to the towns of Dungog, Clarence Town and Paterson.

Three major water sources supply water to Hunter Water: Chichester and Grahamstown Dams and Tomago Sandbeds. There are also minor ground water sources at Nelson Bay and Lemon Tree Passage.

In 1992 Hunter Water was corporatised as a company SOC under the *State Owned Corporations Act 1989*. In early 1999, Hunter Water was, like Sydney Water, changed to a statutory SOC.[9] This means that Hunter Water is no longer subject to corporations law, and the Minister for Energy and Minister for Western Sydney has the power to direct the organisation.

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5 *Sydney Water Catchment Management Act 1998*, Section 3.

6 *Sydney Water Catchment Management Act 1998*, Section 53.

7 Department of Urban Affairs and Planning, Discussion Paper – Sydney and Regional Centres Drinking Water Catchments Regional Environmental Plan, 1999.

8 *Sydney Water Catchment Management Act 1998*, Section 31(1)(c).

9 *Water Legislation Amendment (Drinking Water and Corporate Structure) Act 1998*.

Under the Hunter Water Act,[10] Hunter Water must have an operating licence.[11] Hunter Water's operating licence prescribes the standards of service that Hunter Water must meet in relation to:

- drinking water quality
- continuity of supply
- water pressure
- wastewater treatment
- wastewater transportation
- drought security.

Sydney Water's licence regulator is also the licence regulator for Hunter Water. A compliance audit is conducted annually.

As with Sydney Water, Hunter Water's operating licence provides for a customer contract[12] and for consumer liaison. Hunter Water must:

> … consult with its customers at regular intervals in relation to the systems and services to be provided under this Licence … including the conduct and publication of the Licensee's annual customer survey …[13]

2.1.4 Gosford City Council and Wyong Shire Council

Gosford City Council and Wyong Shire Council are responsible for the supply of water and provision of wastewater services within their own local government areas, but share bulk water sources. Since the early 1970's, Wyong Council and Gosford Council have jointly developed water supply headworks to supply both councils. In 1997, the joint committee established by the councils was renamed the Gosford/Wyong Councils' Water Authority and its charter was widened to address regional water supply and sewerage issues.

The water storages are Mooney and Mangrove Dams in Gosford Council's area and Mardi Dam in Wyong Shire.

Draft Management Plans under the Local Government Act

Unlike Sydney Water and Hunter Water, Gosford and Wyong Councils do not have operating licences which set targets, outline compliance requirements and establish a customer contract. Instead, under the *Local Government Act 1993*, the Councils are required to develop annual management plans with respect to all their activities, including water and wastewater services, for at least the next three years and their revenue policy for the next year.[14] The Local Government Act requires the Councils to consult on their draft city management plans via public exhibition for at least 28 days, during which time public

10 Previously *Hunter Water (Corporatisation) Act 1991.*
11 *Hunter Water Act 1991*, Section 12.
12 This is set out in Schedule 2 to the Licence.
13 Schedule 2, Clause 6.
14 *Local Government Act 1993*, section 402.

submissions may be made.[15] In adopting a final management plan, the councils must take into consideration submissions made on the draft plan.[16]

Gosford Council has implemented a community consultation process to assist the development of its management plan. Gosford Council has a corporate plan which includes five year action plans, indicators of operating performance, and statements of intent. Public meetings are held in the early stages of developing the plan, and public input to the process is invited. The draft plan is then publicly exhibited in April-May each year with further public meetings held to receive public feedback. Revised to reflect input from the public consultation process, the plan is adopted by the Council in June.

Wyong Council also consults on its draft management plan which is published in April each year. To help develop the plan, Wyong Council employs an independent organisation to conduct regular customer surveys in relation to issues to be considered in the planning process. The Council has established precinct committees which are directly consulted on the draft plan. Their comments are taken into account in formulating the final management plan.

2.2 Regulatory environment

Each agency operates within a broad regulatory environment, in which IPART's role as economic regulator is just one component (see Table 2.3). Whilst the two SOCs are governed by their own acts and their operating licences (see section 2.1), Gosford and Wyong Councils are subject to the *Local Government Act 1993* and the *Water Supply Authorities Act 1987*.

This section describes the legislation governing IPART's role as regulator, and describes the national policy framework which has had a major influence on recent developments in the water industry throughout Australia.

Table 2.3 Regulatory environment for water agencies

Function	Sydney Water	Hunter Water	Sydney Catchment Authority	Gosford Council	Wyong Council
Operating licence	licence regulator	licence regulator	licence regulator	None	None
Water Access	DLWC	DLWC	DLWC	DLWC	DLWC
Pricing	IPART	IPART	IPART*	IPART	IPART
Environmental	EPA	EPA	EPA	EPA	EPA
Water quality – public health	Department of Health	Department of Health and DLWC licence process	Department of Health	Department of Health	Department of Health

Notes:
DLWC Department of Land and Water Conservation.
EPA Environmental Protection Authority.
* IPART's regulation of the Catchment Authority's pricing relates to its sales to Sydney Water only.

15 *Local Government Act 1993*, section 405.
16 *Local Government Act 1993*, section 406.

2.2.1 Independent Pricing and Regulatory Tribunal Act 1992

This investigation into the metropolitan water and sewerage agencies is being conducted under section 11(1) of the IPART Act, which requires the Tribunal to conduct investigations into agencies listed in Schedule 1 of the Act. The investigation into the Catchment Authority is being conducted under section 12(1)(a) of the IPART Act, which relates to declared government monopoly services. Independent of the NSW Government, the Tribunal is not subject to ministerial control in making determinations.[17]

Section 15 – matters to be considered

Section 15(1) of the IPART Act describes the matters to be considered by the Tribunal in making determinations. (Section 15 is set out in Appendix C.) This section has been a major reference point for every pricing investigation undertaken under sections 11 and 12 of the IPART Act. Section 15 requires the Tribunal to indicate in any report on a determination the consideration it has given to the issues listed in section 15(1) in reaching its determination. Sections 4, 5 and 6 of this issues paper discusses a range of issues relating to this investigation within the broad framework provided by section 15.

Compliance

Section 18(1) of the *Independent Pricing and Regulatory Tribunal Act 1992* provides that the minister, official, or relevant government agency responsible for fixing the prices of an organisation must ensure that prices do not exceed the maximum determined by the Tribunal. The NSW Treasurer's approval is required if the price is to be fixed below the maximum determined by the Tribunal.

Section 18(4) requires a government agency which is subject to the Tribunal's determination to include in its annual report:

a) particulars of how any such determination has been implemented, and

b) a statement of whether any such recommendation has been implemented and, if not, the reasons why it has not been implemented.

The Tribunal notes that the agencies have been complying with this requirement to date. The Tribunal also seeks regular returns from the agencies, demonstrating their compliance with its determinations.

2.2.2 Services to be priced

The Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997 published in the *Government Gazette*[18] describes services which have been declared to be government monopoly services:

> The following services supplied by Sydney Water Corporation Limited, Hunter Water Corporation Limited, Gosford City Council and Wyong Shire Council are declared to be government monopoly services:
> a) water supply services,
> b) sewerage services,

17 *Independent Pricing and Regulatory Tribunal Act 1992*, section 7.

18 Government Gazette No 18, 14 February, 1997, p 558.

c) stormwater drainage services (being, in the case of a Council, stormwater drainage services supplied by the Council in its capacity as a Water Supply Authority),
d) trade waste services,
e) services supplied in connection with the provision or upgrading of water supply and sewerage facilities for new developments and, if required, drainage facilities for such developments,
f) ancillary and miscellaneous customer services for which no alternative supply exists and which relate to the supply of services of a kind referred to in paragraphs (a)-(e) of this Order.
g) other water supply, sewerage and drainage services for which no alternative supply exists.

This review will investigate and set the maximum charge, or a methodology for setting the maximum charge, for each of these services.

2.2.3 National and interstate regulatory frameworks

National

The provision of water services is generally the responsibility of the State, Territory and Local Governments. Within this framework, the role of the Commonwealth Government focuses mainly on policy development under the auspices of the Council of Australian Governments (COAG) water reform agenda (see below) and the National Competition Policy (NCP).

States and Territories

All States and Territories are applying the COAG and NCP frameworks. However, the speed and extent of structural reform has varied. To date, all jurisdictions have separated the regulatory functions from the water businesses and are establishing appropriate environmental, health and water resource regulators. All jurisdictions have adopted two part tariff pricing structures for urban water, and most are progressing towards full cost recovery in pricing.

In NSW, the State Government has introduced a water reform package to address the health and sustainability of NSW rivers. The first stage is to set interim water quality objectives and river flow objectives for NSW rivers. The second stage involves catchment inquiries conducted by the Healthy Rivers Commission. The Commission makes recommendations to the Government on environmental standards for water quality, river flow and other aspects of river health.

The NSW Environment Protection Authority (EPA) plays an important role in maintaining water quality in NSW by setting licence conditions for discharges to the environment, taking into account environmental standards, the receiving environment, technological factors, and cost. NSW Health Department monitors water quality issues relating to public health in NSW. The Department has endorsed the 1996 Australian Drinking Water Guidelines.

The Council of Australian Governments (COAG) reforms

In April 1995 all Australian governments reached agreement on a National Competition Policy (NCP) for Australia. One of the agreements signed was the *Agreement to Implement the National Competition Policy and Related Reforms,* including water industry reforms as set out in

the Water Resource Policy. These water industry reforms are linked to the NCP 'tranche' payments which form part of the NCP agreements.

The National Competition Council (NCC) has published a compendium of these Agreements[19]. The full Water Resource Policy is set out in the compendium. Essential elements of the COAG water pricing principles for urban suppliers are summarised below:

- pricing should be consumption-based, reflecting full cost recovery and desirably, removal of cross-subsidies
- where water services are required to be provided to classes of customer at less than full cost, the cost is to be fully disclosed and ideally paid to the service deliverer as a community service obligation
- where cost-effective, by 1998 urban water services are required, to implement water charges which comprise an access (or fixed) component and a usage component, (ie two part pricing)
- publicly owned urban water supply organisations are to aim to earn a real rate of return on the written-down replacement cost of their assets, commensurate with the equity arrangements of their public ownership.

Although the IPART Act does not require the Tribunal to apply the COAG framework in its determinations,[20] section 15 provides for the Tribunal to take into consideration any matters it considers relevant. The Tribunal considers that it has a responsibility to ensure that a major national policy such as the COAG framework, which has been endorsed and agreed to by the NSW Government, is given full consideration during its investigations.

ARMCANZ guidelines

The Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) has been responsible for advancing matters raised in the Water Resource Policy on behalf of COAG. At a meeting in February 1998, ARMCANZ endorsed a set of guidelines for the application of the sections of the Water Resource Policy dealing with asset valuation, return on assets, and assets renewals in the context of cost recovery and subsequent price determination. These Guidelines are set out in Appendix E. ARMCANZ recommended that the Guidelines be approved by COAG as the basis for the National Competition Council's assessment of jurisdictions' reform commitments pursuant to the NCP and associated agreements.

The Guidelines establish floor and ceiling levels of revenue. Above the ceiling, the water supplier would earn monopoly rents. Below the floor, the water supplier would not generate sufficient cash to meet its commitments and this would not be financially viable. The guidelines provide no direction as to where the level of revenue should lie between the floor and the ceiling. That is left to the discretion of the jurisdictional regulator.

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19 National Competition Council, *Compendium of National Competition Policy Agreements* – second edition, June 1998, pp 99-113.

20 As outlined above in section 2.2.1, IPART is independent of the NSW Government and not subject to ministerial control. Although the Tribunal is not bound by any policy commitments entered into by the NSW Government, the Tribunal considers such policies in its determinations.

Tribunal's approach

As outlined above in section 1.4, the Tribunal's legislation requires it to have regard to a number of matters in determining the maximum price. The Tribunal's approach to an investigation generally involves undertaking a comprehensive financial analysis of an agency in order to determine the level of income sufficient for the agency to recover its efficient operating costs and to provide an appropriate return on invested capital.

The Tribunal applies a suite of financial indicators (including, but not confined to, measures of return) to assist it in setting prices. This process can establish a range of prices between a floor and a ceiling. The Tribunal then uses its judgement, taking into account all the matters to which it must have regard, to determine the appropriate level of prices.

This approach is consistent with the ARMCANZ Guidelines. In past determinations, the Tribunal's decisions have reflected outcomes which lie within the floor and ceiling revenues established by the guidelines.

2.2.4 Third party access

Another component of the NCP is the agreement to establish a regime under Part IIIA of the Trade Practices Act, providing third party access to 'essential' services provided by facilities of national significance. This national access regime enables businesses (or individuals, or other organisations) to gain the legal right to negotiate for the use of services provided by infrastructure operated by other businesses. The regime provides a framework to ensure the terms and conditions of access, including price, are reasonable. If parties are unable to reach a commercial agreement, the regime provides for arbitration.[21]

The intent of the regime is to encourage competition in related markets. For example, in the electricity industry access to transmission and distribution infrastructure will enable competition between electricity generators and retailers.

A report on third party access prepared for the NCC[22] notes that many services in the Australian water industry are likely to meet the criteria for declaration under part IIIA of the Trade Practices Act.[23] These criteria are:

- access to services provided by water facilities could promote competition in another market
- it is not economically feasible to develop another facility to provide the service
- water facilities are nationally significant
- access can be provided without undue risk to human health and safety
- access is likely to be in the public interest.

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21 National Competition Council, *Information Paper - Third Party Access to the Australian Water Industry*, December 1997, p 1.
Businesses can gain access to significant infrastructure services via any one of three mechanisms:
- By applying to the NCC to have an infrastructure service 'declared'.
- By making a voluntary 'undertaking' to the ACCC.
- States and Territories are able to set up specific access regimes which are not subject to part IIIA of the Trade Practices Act.. (page 1)

22 Ibid.

23 op cit, piii.

However, the report concludes that:

> … on balance, it is not likely that access arrangements will generate such widespread competition in water markets as it has in electricity and telecommunications… Nevertheless, access is likely to stimulate competition at the margin. And, as has been the experience in the United Kingdom, just the potential for access can stimulate pricing reform and efficiency improvements.[24]

Two years down the track, this view has proven to be correct. The NCC has not received any applications for declaration of water infrastructure and no voluntary undertakings have been established with the ACCC.[25] However, Hunter Water has indicated that it is giving consideration to a large-user tariff in response to possible competitive pressures arising from potential third party access (see section 7.2.1).

In the UK, the experience has been similar. Although the legal framework for third party access (inset appointments) has been in place since 1991, at time of writing, only five inset appointments had been made. However, six further applications are currently under consideration.[26] Since the inset appointments framework was extended in 1992 to allow large customers to be targeted, 20 companies have introduced 'large-user tariffs' designed to meet any potential competition.[27]

The Tribunal seeks comments on the potential for third party access in the water industry and its likely impacts.

The Tribunal seeks comments on whether consideration should be given to developing large-user tariffs in response to potential competition.

2.2.5 Competitive neutrality and income tax requirements

An important component of the NCP is the agreement to implement competitive neutrality policy (CNP) and principles.[28] As set out in the Competition Principles Agreement, the aim of CNP is to eliminate resource allocation distortions by removing any net competitive advantages of government business activities that arise simply as a result of their public sector ownership.

Each jurisdiction is free to determine its own agenda for implementing CNP. The main requirements of CNP are that where the benefits outweigh the costs:

a) for significant government business enterprises[29]:

- a corporatisation model is to be applied, where appropriate, and the following imposed
  - full Commonwealth, State and Territory taxes or tax equivalent systems,
  - debt guarantee fees, and

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24 op cit, p iv-v.

25 Telephone advice from Mr S Cohen, National Competition Council, 22 June 1999.

26 Ofwat, 1999-2000 Report on Tariff Structures and Charges, May 1999, p56.

27 S Cowan, "Competition in the Water Industry", *Oxford Review of Economic Policy*, vol 13, No 1, 1997, p 83.

28 Competition Principles Agreement, April. 1995, clause 3.

29 classified as Public Trading Enterprises and Public Financial Enterprises under the Government Financial Statistics Classification.

- regulations that apply to private sector businesses (such as environment protection and planning and approval processes)

b) for significant government business activities[30]:

- where appropriate adopt the above corporatisation model, or
- ensure that prices charged take account, where appropriate, of tax/tax equivalents, debt guarantee fees and relevant regulations, and reflect full cost attribution.

As SOCs,[31] Hunter Water and Sydney Water comply with the corporatisation model required of significant government business enterprises, and are subject to State and Commonwealth tax equivalent regimes.

The NSW Government policy statement on the application of CNP to local government commits local councils to applying a corporatisation model to category 1 businesses[32] from 1 July 1997. This involves establishing separate reporting frameworks for accounting and management purposes, and full cost attribution including tax equivalent payments, debt guarantee fees and a return on capital. The water and sewerage businesses of Gosford Council and Wyong Council have been identified as Category 1 local government businesses.

The Tribunal understands that Gosford Council and Wyong Council will comply with this requirement by means of special purpose financial reports from 1998/99 on. As tax equivalent payments are a legitimate business cost, the Tribunal anticipates incorporating a tax equivalent component in the revenue requirements of the two Councils. This would then impact on prices charged by the Councils.

The Tribunal seeks comments from the two Councils and other interested parties as to the impact of implementing competitive neutrality policy on their costs and charges.

However, the Tribunal notes that section 409(3a) of the *Local Government Act 1993* provides (in relation to funds received by a council):

> … money that has been received as a result of the levying of a special rate or charge may not be used otherwise than for the purpose for which the rate or charge was levied.

The Department of Local Government has advised the Tribunal's Secretariat[33] that this provision in the Local Government Act prevents the physical payment of taxes or dividends by local government water and sewerage businesses to their owner council's general fund. On advice from the Department of Local Government, Gosford Council and Wyong Council will be listing notional income tax equivalent payments in their special purpose financial reports, but these amounts will be offset by an explicit (notional) subsidy from the Councils.

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30 where an agency not covered by category (a) conducts significant business activities as part of a broader range of functions.

31 Under *the State Owned Corporations Act (NSW) 1989*.

32 Businesses with annual gross operating incomes of $2 million and above.

33 Telephone advice from Mr F Abdul Rahin, Finance Management Branch, Department of Local Government, 30 June 1999 and 20 July 1999.

The Tribunal will take the notional subsidy into account in assessing the revenue needs of the water and sewerage businesses.

In recent correspondence with the Tribunal, NSW Treasury asked the Tribunal to ensure that Commonwealth tax equivalents be factored into the Tribunal's medium term price path for both Gosford Council and Wyong Council from 1 July 2000. However, it is of some concern to the Tribunal that in this event, Councils' water and sewerage businesses will receive higher revenues in compensation for a tax equivalent payment they do not make. The outcome will be higher charges to Council customers and the accumulation of cash reserves in the water and sewerage businesses.

2.2.6 Goods and Services Tax (GST)

The Commonwealth Government will implement the GST package on 1 July 2000. This will have implications for some water, sewerage and drainage charges. At time of writing, the Tribunal has received preliminary advice[34] that the supply of water and sewerage services will be GST free.[35] As such, there will be no GST levied on the sale of water and sewerage services. At the same time, the water agency will be able to claim back input tax credits.

There is still much uncertainty about the GST framework and how it will impact on the agencies. In the meantime, the Tribunal's preliminary view is that regulated entities should be allowed to pass through the net effect of the GST, taking into account any changes to other taxes. The entity will have to provide the Tribunal with independent verification of this 'net effect'.

The Tribunal seeks comments on the likely impact of the GST on the water agencies' input costs and charging frameworks. Information is sought on the GST status of the services provided by the agencies, and on any procedures implemented to comply with the GST.

34 Copy of letter from Commonwealth Treasury, GST Free Unit, to Victorian Department of Treasury and Finance, 16 February 1999, relating to "GST and Activities within the Water Industry".

35 "GST free: means that no GST is levied on the sale of the good or service. However, registered persons or businesses can claim back input tax credits. 'Input taxed' means there is no GST on the sale of the item, and input tax credits cannot be claimed (residential rent is an example).

3 FORM OF REGULATION

Regulation is designed to provide a mechanism for trading off competing claims on a monopoly agency in the absence of competitive markets. Customers want the lowest charges possible for the quality of service they desire. Management wants sufficient revenue for financial and organisational stability and to fund future growth. As owner, Government may wish to use revenues raised by the agency to pursue policy objectives such as equity or industry development, or it may wish to maximise the dividend.[36]

However, regulation is not perfect or costless. It may create an administrative burden and can adversely affect incentives. Thus, a regulator should aim to create a regulatory environment which establishes a reasonable balance between the competing interests, minimises the administrative burden, and does not have a large negative impact on incentives.

3.1 Criteria for form of regulation

Price regulation is usually implemented to prevent abuse of monopoly power. Abuse of monopoly power can take various forms, including:

- excessive prices (creating monopoly profits)
- cross subsidies to certain customer groups, funded by overcharging other customer groups
- excessive costs due to gold plating of assets, over servicing, having a larger workforce than necessary, or other inefficiencies.

Well designed regulation is intended to replicate the incentives created by a competitive market and to thereby increase the efficiency and productivity of the monopoly agency. The Tribunal has previously set out the criteria which the form of regulation should meet, namely:

- be effective in controlling monopoly power
- preserve, as far as possible, managerial autonomy and incentives for greater efficiency within the organisation
- encourage efficient use of society's resource, including allowance for environmental impacts
- be simple and easy to understand
- enable ready verification of compliance. [37]

These objectives can be used as a reference point when assessing of alternative price control systems. It is likely that any regulatory system adopted will involve a compromise between some of these potentially competing objectives.

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36 Government Pricing Tribunal, *Inquiry into Water and Related Services*, October 1993, p 245.

37 GPT, op cit, p 246.

3.2 Alternative regulatory forms

The two main forms of regulation adopted internationally are 'rate of return' control and 'incentive CPI±X' control.

3.2.1 Rate of return regulation

Rate of return regulation developed over the last century in the United States. It was not designed specifically to achieve economic efficiency, but rather, evolved out of a history of conflict arising from the question of what was a fair profit for a publicly regulated monopoly to earn. This was eventually settled by the US judicial system.[38]

Under rate of return regulation, the regulator sets an allowed rate of return on assets. The regulator approves the agency's asset base and costs and, ultimately, a set of prices which complies with the regulated rate of return.

Although it provides a guaranteed financial return on the agreed asset base, rate of return regulation has been criticised because it:

- tends to bias the agency's choice of productive inputs towards capital rather than labour
- fails to control the monopolist's tendency to price discriminate
- fails to encourage technological change.[39]

Thus, rate of return regulation may provide an incentive to over invest in the asset base (gold plate) in order to achieve higher revenues. This form of regulation also provides little incentive to achieve efficiencies by reducing operating costs.

3.2.2 CPI-X incentive regulation

CPI-X has been the Tribunal's preferred form of regulation. Under this approach, the agency is not guaranteed a specific rate of return on its invested capital. Rather, it is encouraged to improve productivity to attain a given level of outputs (including satisfying service quality and environmental standards). This is the effect of the 'X' factor, which is expressed as a percentage. If the agency is able to reduce its costs in real terms, while maintaining standards, by a factor greater than X, it is able to retain the additional funds generated by this greater efficiency, at least for the extent of the regulatory period.

The role of the regulator is to form an independent view of the scope for productivity improvement, taking into account the productivity targets proposed by the agency. The agency's acceptance of the regulator's chosen target is essential for the maintenance of appropriate accountabilities and incentives.

38 R Sherman, *The Regulation of Monopoly*, 1990, p 183.
39 op cit, p 198.

CPI-X regulation is seen as having three main advantages:

- It is less vulnerable to cost-plus inefficiency and excessive investment. Unlike rate of return control, CPI-X does not automatically allow investment to flow to higher revenues.[40]
- It allows the agency the flexibility to vary its price structure within a broad CPI-X constraint. However, the regulator needs to balance this feature with the need to monitor the pricing structure to ensure that cross subsidies are not occurring.
- It may be simpler for both regulator and agency to operate.

Unlinked incentive regulation versus cost linked incentive regulation

The evolution of incentive regulation within regulated monopoly industries (particularly the electricity sector) has seen the development of two approaches to incentive regulation: 'unlinked' and 'cost linked'.

Under the unlinked approach, regulated revenues are determined with reference to an independent benchmark measure of efficiency which is not directly related to the agency's cost of operation. For instance, a generalised measure of efficiency (such as a total productivity measure[41]) can be used to establish a value for X in the CPI-X formula.[42] In this instance, X represents a productivity offset, whereby the agency is able to increase prices in line with inflation, less an allowance for the extent to which it is expected to exceed economy-wide growth in productivity. No direct link between costs and prices is maintained.

The Tribunal considers this approach has considerable merit because it:

- provides strong long term incentives
- provides light handed regulation
- lessens the information requirements of the regulator
- lessens the opportunity for information gaming by the agency.

However, the unlinked approach requires a great deal of regulatory judgement and the development of sophisticated and reliable benchmarking frameworks which do not exist in any regulated monopoly industry at present. Further, it may be unfair to ignore the actual costs of an agency altogether. For these reasons, the cost-linked approach may be preferable, at least in the medium term.

The cost-linked approach is reflected in the ARMCANZ guidelines. This approach has been referred to as the 'building block' approach by participants in the electricity industry. The building block approach assesses revenue needs as the sum of estimated:

- efficient operating costs

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40 However, in practice rate of return regulation does not always allow investment to automatically flow through to higher revenues.

41 Total factor productivity, data envelopment analysis, or stochastic frontier analysis.

42 There are, in fact, two stages in the process. Total factor productivity studies are used to estimate the trend growth of productivity in the industry in its recent past. After allowing for economy-wide productivity growth, this translates to the X in the CPI-X. formula. This figure is further adjusted (eg on the basis of benchmarking studies) to allow for differences in productivity between firms.

- depreciation (return *of* capital)
- a risk adjusted return *on* capital (usually measured by weighted average cost of capital (WACC)).

The advantages of the cost-linked approach are that it:

- links revenues to costs
- allows for consideration of efficient costs
- allows for risk adjustment of the rate of return
- identifies any outperformance, thus allowing for the sharing of these benefits with customers.

However, there are also problems associated with this approach. The Tribunal has long had concerns about the 'pure' building block approach. The cause for concern is that it can lead to a procedure-bound methodology in which key decisions about major components of the revenue requirement are made regardless of other key components. The Tribunal prefers an approach which has regard to the interaction of key components and to the impact on the agency's prices and profits.

In recent reviews, the Tribunal's approach to incentive regulation has involved:

a) applying the building block approach to assess a revenue requirement
b) formulating maximum prices or revenues according to this assessment
c) checking the reasonableness of the building block approach by employing a suite of financial indicators to assess the revenue outcomes.

In particular, the indicators have been used to assess the cashflows the agency is likely to require during the regulatory period, and to assess how the revenue requirements determined by the building block analysis impact on these cashflows.

The Tribunal seeks comments on the most appropriate form of regulation for water agencies and the criteria that should be used to assess the form of regulation employed.

3.2.3 Price cap versus revenue cap

CPI-X regulation can be expressed as a cap on average prices or a cap on revenue (average prices multiplied by quantity supplied). Under a revenue cap, the agency has a high degree of flexibility to set prices within the revenue cap. For a price cap, the broader the definition of the average price measure to be capped, the more flexibility the agency has in adjusting specific prices within the average. Alternatively, as the Tribunal has done in the past, specific prices may be set for each service.

In its 1993 *Inquiry into Water and Related Services*, the Tribunal supported the application of the CPI-X approach to average revenue per property, rather than to prices.[43] The reason for

[43] Average revenue per property is, in fact, a measure of average price for a given volume supplied to the property. If the volume supplied to the property increases, average price will fall.

this was because of the possibility that regulation by price rather than by revenue would create a bias against demand-side management by suppliers.[44]

Thus, the application of a CPI-X cap on average revenue may be preferable to a price cap because it will :

> … encourage the supplier to promote demand-management options where these are the lowest cost means of meeting a customer's needs.[45]

Under a revenue cap, the short-term incentive for the supplier to sell as much as it can is removed, as revenue is guaranteed by regulation, regardless of quantity sold.

Following the 1993 Water Services Inquiry, the Tribunal imposed the CPI-X average revenue cap per property methodology to establish a medium term price path for periodic charges of Wyong and Gosford Councils in 1996. The 1996 determinations for Hunter Water and Sydney Water effectively applied a CPI-X price cap on all services.

During the 1999 Tribunal's investigation of water pricing, Wyong Shire Council suggested that it is difficult to comply with the cap on revenue per property when there are fluctuations in demand due to abnormal weather conditions.[46] In drought conditions much more water is sold and compliance with the revenue cap per property is difficult. Wyong Council proposes that a CPI-X price cap allowing for fluctuations in revenue is a better form of regulation. During consultations, Gosford Council also indicated a preference for the price cap methodology.

The Tribunal seeks stakeholder views on the question of whether a price cap or revenue cap model should be employed. Comments are sought on how a price or revenue cap should be structured.

3.2.4 CPI-X price cap applied to a basket of services

The UK water regulator, the Office of Water Services (Ofwat), regulates charges for 28 water (and sewerage) companies in England and Wales. Ofwat establishes water and sewerage charges by setting a limit on average increase in charges in any year, within a CPI-X price cap framework. Ofwat applies the CPI-X to a tariff basket which comprises the following five items:

- unmeasured water[47]
- unmeasured sewerage
- measured water
- measured sewerage
- trade effluent.

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44 If prices are fixed regardless of volume supplied, there is no incentive to limit the volume supplied, as there is no cap on allowable revenue. If revenue is capped, the supplier is entitled to maximum revenue which is not dependent on the volume of water supplied. Thus, the supplier has the option of raising prices rather than increasing volume supplied - which is a form of demand management.

45 GPT, op cit, p 250.

46 Wyong Shire council, Submission to 1999/2000 Annual Determination, section 3(vi).

47 'unmeasured water' refers to an unmetered water supply, 'measured' refers to metered supply.

The current tariff basket formula was established as part of the privatisation of UK water and sewerage suppliers in 1989. It is a complex mechanism comprising two methods of calculating the weighted average increase, one for unmeasured (unmetered) charges, and one for measured charges. Most of a company's charges are linked within the tariff basket, which means that changes to some tariffs can be offset by complementary changes to others.[48]

Within the overall limit, basket items may increase by different amounts and percentages. However, a provision in the company licence prevents it from showing any undue discrimination or undue preference in its charges to customers.[49] A company has the option of increasing its charges by less than the price limit if for any reason, it believes that it is unnecessary to adopt the full available increase.

One option for the form of regulation for the NSW water and sewerage agencies subject to this review is to apply an average CPI-X price cap to a tariff basket of water and sewerage charges. This raises the question of the appropriate arithmetic formula for such a weighted basket, and which items should be included in the basket. For instance, should developer charges, drainage, miscellaneous and trade waste charges be included along with water and sewerage charges?

The Tribunal seeks comments on the possible use of a tariff basket to establish maximum prices for the water agencies. The Tribunal also seeks comments on which items should be included in such a tariff basket.

Comments are also requested on the need for controls over individual prices in the basket (for example, usage price may be important for demand management) and on the need for side constraints on price changes.

3.3 Price structure

3.3.1 Two part tariffs

Economic theory generally requires that a pricing structure meet the four criteria of: efficiency, equity, financial viability and simplicity.[50] Two part tariffs[51] have been adopted as the preferred pricing structure by most participants in the water industry because they are allocatively efficient,[52] equitable (in that the 'user pays') and achieve financial viability (because the access component ensures that sufficient revenue is recovered). The implementation of two part tariffs involves some complexity, particularly if the calculation

48 Ofwat, 1999-2000 report on tariff structure and charges, p 11.

49 Ofwat, op cit.

50 London Economics, *Pricing Principles for Water, Sewerage and Drainage Services*, April 1995, p 4 in GPOC, Investigation into the Pricing Policies of Hobart Water, North West Regional Water Authority and Esk Water Final Report, 1998, p 76.

51 A two part tariff comprises a fixed component intended to recover the costs of access to the system, and a 'usage' component which varies with consumption. Ideally, the usage charge reflects the long run marginal cost of supply.

52 Allocative efficiency requires that resources be consumed by those who value them most highly. This requires goods to be priced at their cost of production. A two part tariff which consists of a usage charge based on long run marginal cost and an access charge which recovers efficient fixed costs will achieve allocative efficiency.

of the usage charge is to be based on long run marginal costs.[53] However, it has generally been accepted that the advantages of achieving an efficient, equitable, and financially viable price structure outweigh any disadvantages arising from loss of simplicity.

In its 1993 Inquiry, the Tribunal supported the two part tariff as an appropriate pricing structure, noting that efficient water prices require that:

- regional cost variations be signalled either through differences in annual usage and access charges or through developer charges
- the usage charge should vary between seasons to reflect variations in the marginal costs of supply.[54]

Throughout Australia, all metropolitan urban water suppliers are now applying two-part tariffs. The Water Service Association of Australia (WSAA) advises:

> Across all participating businesses, it is estimated that some 50% of water revenue is now raised from usage charges.[55]

The COAG Water Resource Policy supports implementation of two part pricing by urban water authorities where cost effective. Hunter Water has been applying a two part tariff structure since 1982. Sydney Water has been moving towards a two part tariff structure since 1992. Its charges continue to contain a minor element of property-value based charges, but the elimination of this component is likely to be considered in this investigation. More than 50 per cent of local councils which supply water services in NSW have implemented two part tariffs.[56] Gosford and Wyong Councils are proposing to move to a pure two part tariff in 2000/01 by eliminating the existing prepaid water allowance for the first 200kL of consumption (refer section 7.1).

3.3.2 Regional pricing

The Tribunal has considered the issue of regional variations in the costs of water supply and concluded that no evidence of substantial variations in costs for existing developments had been provided:

> In the absence of any evidence to the contrary, the Tribunal proposes that annual residential charges for water supply within a supplier's area of operation should be uniform.[57]

The Tribunal noted that locational cost differences may be substantial for new urban development. Differences in costs in new areas should be recovered in developer charges.

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53 Marginal cost represents the opportunity cost (sacrifice made by society) of producing an extra unit of a good. It is defined as the change in total cost that results from increasing production by an additional unit. Short run marginal cost calculations assume that capacity does not change. Long run marginal cost calculations take variations in capacity into account.

54 IPART, op cit, p 149.

55 Water Services Association of Australia, WSAAfacts'98, p 61.

56 Verbal advice from Manager Water Utility Performance, Department of Land and Water Conservation, March 1999.

57 GPT, op cit, p 154.

Currently, both residential and non-residential customers of all four water agencies face uniform or 'postage stamp' water usage charges. Access charges vary according to meter size.

The Tribunal seeks comments on the advantages and disadvantages of implementing of regional pricing within the jurisdictions of each agency.

3.3.3 Seasonal pricing

It is generally accepted that consumption patterns will vary with the seasons. In particular, in summer, outdoor use of water often drives the requirement for new supply infrastructure, whether through annual consumption, or peak day demand.[58] Thus, it is possible to calculate different marginal costs for water supply for summer and winter and reasonable to charge different water usage prices in each season.

A recent WSAA paper reports that a Melbourne-based study conducted in 1992 concluded there was not sufficient advantage in implementing seasonal pricing, because of the metering systems which would be required to be installed.[59] Where seasonal pricing is used, the study notes that it is necessary to ensure that the meter reading is done at the appropriate time of year. Technological advances may assist in lowering the cost of metering in the future, making time-of-use and seasonal pricing more feasible.

The WSAA paper notes that experience in North America has shown that seasonal pricing can achieve a deferral of supply augmentation. WSAA refers to a study which found that three conditions determine whether seasonal pricing is feasible:

- the variation in demand for water between the peak and off-peak period must be substantial
- the capacity investment must be mainly determined by the peak demands
- the peak demands must consistently occur during the same season.[60]

The water agency must be able to make good estimates of peak and off-peak demands and the costs of the required augmentation work.

In its 1993 Report, the Tribunal noted:

> In assessing proposals for more cost-reflective but complex tariffs, it is important to consider whether cost variations, and the responsiveness of customers to these are sufficient to outweigh the administrative and other costs of more complex pricing systems.[61]

At that time, the Tribunal concluded that in the absence of data indicating significant cost savings, seasonal or time-of-day pricing should not be introduced. Nevertheless, the Tribunal did not wish to prevent individual suppliers from introducing seasonal charging where the net benefits were demonstrable.

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58 Water Services Association of Australia, *Wise Water Management, A Demand Management Manual for Water Utilities*, November 1998, p 35.

59 1992 study by Dixon and Baker referred to in *Wise Water Management*, op cit.

60 ibid.

61 IPART, op cit, p 153.

The Tribunal seeks comments on the advantages and disadvantages of implementing of seasonal pricing.

3.4 Sharing the benefits

The regulatory regime should be designed to provide incentives for the regulated entities to improve their efficiency and service to customers. The incentive framework should allow the agencies to retain some of the benefits of their efficiency gains, while at the same time passing some of the gains on to customers.

One approach to price regulation is to make a full 'P_0' adjustment to a agency's prices or revenues at the beginning of each regulatory period. The 'P_0 adjustment' concept means that any unexpected efficiency gains (ie gains beyond the 'X' factor) achieved by a agency during a regulatory period are fully passed on to customers at the start of the next regulatory period in the form of lower prices.[62] The agency is able to benefit from its 'overperformance' in efficiency only during the regulatory period in which that overperformance occurs. This can create adverse incentives in agency behaviour such as holding over efficiency improvements until the start of a new regulatory period in order to retain the benefits for the longest possible time.

In its recent *Prospects for Prices* paper[63], Ofwat suggests that achieving the right balance in incentives could act as a proxy for the rigours of a competitive market. In a competitive market, a poorly performing company which does not improve, fails and is replaced. On the other hand, a company that successfully innovates and becomes more efficient will make substantial returns. In time, the profits will feed through to its customers in the form of lower bills. Ofwat notes that "achieving the right balance in incentives for improving efficiency is one of the most difficult issues to resolve at the Periodic Review."[64]

3.4.1 Ofwat's proposed approach

Following consultation on *Prospects for Prices*, Ofwat released an information paper in March 1999 which sets out its intended approach to the incentive framework. Ofwat indicated that companies will be set challenging targets (the 'X' factor) for cost reductions within their price limits. If these targets are exceeded, the company will be able to retain the benefits for a fixed five year period, irrespective of the timing of price reviews.[65]

Ofwat's proposal means that the benefits of a company's outperformance will be transferred to customers five years after the year in which the incremental costs savings were made. This approach is expected to benefit customers by providing the appropriate incentives for companies to become more efficient, thus enabling subsequent reductions in prices. It will

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62 Similarly, the P_0 adjustment implies that any unexpected losses incurred by the entity due to exogenous factors, may be reflected in higher prices at the start of the next regulatory period. An efficiency loss or 'efficiency underperformance' due to the direct initiative of the entity is unlikely to occur (but not impossible) in the current regulatory environment. In such an instance it is unlikely that the regulator would pass on higher prices to the consumer in the subsequent regulatory period, but would rather penalise the entity through a lower rate of return.

63 Ofwat, *1999 Period Review – Prospects for Prices (A Consultation Paper)*, October 1998.

64 ibid.

65 Ofwat newsletter to Managing Directors, MD145, 8 March 1999, p 2. This approach has recently been confirmed in Ofwat's Draft Determination on Future Water and Sewerage Charges 2000-05, July 1999 p 82.

create an incentive for companies to adopt a continuous approach to cost reduction which is likely to be more effective than the stop-start approach to cost saving encouraged by periodic price reviews.

3.4.2 ORG's proposed approach

In a recent draft discussion paper relating to the electricity industry,[66] Victoria's Office of the Regulator General (ORG) considers the implementation of an incentives framework within the CPI-X model. The framework proposed by ORG would reward operating efficiencies achieved at the direct initiative of the regulated entity by allowing it to keep the benefits of those efficiencies beyond the period in which they were achieved.

ORG proposes a 'partial glide path' approach whereby improvements (or deteriorations) in the entity's financial position during the current regulatory period due to exogenous factors would be passed directly through to customers at the beginning of each new regulatory period.[67] At the same time, improvements in the entity's financial position due to its own initiatives would be retained by the entity for a specified time beyond the start of the subsequent regulatory period.

This partial glide path approach compares with the 'full glide path' model whereby any over or underperformance by the entity during a regulatory period, whether controllable or exogenous, is retained by the entity beyond the end of the first regulatory period on a specified price path. Thus, the entity is able to retain a share of all efficiency gains (and losses) beyond the specific regulatory period in which they occur.

3.4.3 IPART's approach to date

In a recent electricity industry report to the Premier, the Tribunal supported sharing the benefits through the full glide path approach. This means all gains and losses experienced by the agency (apart from changes in the law and *force majeure* events) are subject to a glide path adjustment:

> A pure glide path provides strong incentives for (Network Service Providers) to pursue efficiency gains by allowing them to retain a proportion of these gains in the subsequent regulatory period. No distinction is made between gains which are management-induced, and those which are windfalls. It provides management with certainty about the sharing of gains and is symmetrical in its implementation. The increased time frame places more pressure on the regulatory framework to emulate competitive pressures and ensure that costs and revenues are aligned. [68]

A further advantage of the full glide path approach is that it is simple to apply and less information intensive than the partial glide path.

A suggested approach[69] to implementing the full glide path approach is that a proportion of the value of outperformance or underperformance in the regulatory period can be identified as the amount to be shared with customers in the subsequent regulatory period. This

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66 Office of the Regulator-General, Victoria, *2001 Electricity Distribution Price Review, Efficiency Measurement and Benefit Sharing*, Draft Consultation Paper No. 2, December 1998.

67 ORG, op cit, p 30.

68 IPART, *Pricing for Electricity Networks and Retail Supply, Volume 1*, June 1999, p 24.

69 IPART, *Pricing for Electricity Networks and Retail Supply*, Volume 1, June 1999, p 25.

amount could be expressed in net present value terms. Accordingly, the Tribunal would be able to specify in net present value terms, the amount of the benefits that the agency may retain in the next regulatory period. The agency could then be left to determine how it recovers that amount. The advantages of this approach would be:

- greater flexibility in the shape of the glide path
- greater choice of price path for the agency
- it would help the agency to deal with variable patterns in its underlying costs.

The Tribunal seeks comments on efficiency incentives and appropriate methodologies for sharing the benefits. Comments are sought on the full glide path and partial glide path approaches.

3.5 Incentives to improve service performance

In addition to the benefit sharing strategies described above in relation to efficiency gains, it is also possible for a regulator to create incentives which promote improvements in service standards.

3.5.1 Ofwat's service performance adjustment

Ofwat is currently implementing a regulatory framework to promote good service to customers. Ofwat has indicated it will adjust the price limits faced by individual companies in 2000/01 to reflect the overall standard of service provided to customers.[70] The price adjustment will reward relatively good performance and penalise relatively poor performance. This is to provide an incentive to improve services and a disincentive to companies to cut costs by reducing the standard of service provided. Measurement of performance will be based on an assessment of performance in a wide range of services, including water quality, in the three years prior to the review year.

3.5.2 IPART's approach to date

In its role as economic regulator, IPART is not also a 'standards' regulator. However, one of the matters which the Tribunal is required to take into consideration in section 15 of the Act is:

> Standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).[71]

In its recent electricity industry report,[72] the Tribunal notes that while it supports the use of incentives in economic regulation, caution is needed when designing incentive mechanisms which target specific service performance outcomes. Risks include the failure to achieve the desired outcome, or the creation of unintended consequences. There is also the possibility of double counting if service improvements are incorporated into operating and capital cost projections as well as the revenue cap formula. A further issue is the question of how to value performance improvements.

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70 Ofwat, Draft Determination , *Future Water and Sewerage Charges 2000-05*, July 1999, p 92.

71 IPART Act, section 15 (1l).

72 IPART, *Pricing for Electricity Networks and Retail Supply,* op cit, p 35.

The Tribunal concluded that before further consideration is given to the issue of reliability incentive mechanisms in the electricity distribution industry, the industry has to meet certain conditions, including:

- demonstrating it possessed consistent robust, verifiable reliability performance data to support financial modelling of reliability performance
- demonstrating that a simple and effective means of ensuring service standards will not deteriorate in 'problem' regions
- publishing information on its performance in a manner meaningful to customers.[73]

The Tribunal seeks comments on whether agencies should be provided with additional incentives for service performance, along the lines of those implemented by Ofwat. Comments are sought on problems which could arise from implementing service performance incentives in the water industry.

3.6 Ring fencing

Ring fencing is the clear separation of subsidiaries or divisions of a company which may otherwise enjoy competitive or regulative advantages in dealing with each other. Ring fencing is essential when a agency operates in both regulated and competitive markets and/or in separately regulated markets.

Effective ring fencing ensures that regulated activities do not cross subsidise non-regulated (or contestable) activities. Effective ring fencing prevents the manipulation of cost allocation and transfer pricing between the regulated and competitive elements of a business. It seeks to ensure that information flowing between the two elements of a business does not create competitive advantages.

The development of the national market for electricity has created an environment in which incumbent electricity suppliers may achieve substantial commercial advantage over new entrants. In accordance with the National Electricity Code, the Tribunal is developing ring fencing guidelines for the electricity industry in NSW. The introduction of competition into the water industry has not progressed to the same extent as in the electricity industry. However, in some areas of the water agencies' businesses there is competition with private organisations. Furthermore, national competition policy guidelines recommend the introduction of competition in general to promote consumer welfare in the form of cheaper prices and increased choice. One of the most likely methods is allowing third parties access to networks. Ring fencing may be critical in this situation.

Sydney Water and Hunter Water have fully owned subsidiaries. They are Australian Water Technologies and Hunter Water Australia respectively. These businesses supply services to their respective parent and corporation and also compete for business against private sector organisations. In this situation, many of the costs of the parent and the subsidiary business accrue jointly. If these costs are not allocated precisely to each business, the financial results of the parent and the subsidiary will be unreliable.

[73] ibid, p 36.

There is also potential for the costs of the subsidiary to be intentionally allocated to the parent to give the subsidiary a competitive advantage against outsiders. The subsidiary costs would then be recovered from the customers of the parent body. Many of the joint costs must be allocated on an arbitrary basis. If the allocation methodology is unsound, there can be an inadvertent misallocation. The normal audit for external reporting does not necessarily ascertain the veracity of these arbitrary allocations.

The Tribunal seeks comments on the need for a higher level of regulation of ring fencing in the water industry.

4 ISSUES TO BE CONSIDERED UNDER SECTION 15 OF THE IPART ACT – COSTS AND EFFICIENCY

In making a determination under the *Independent Pricing and Regulatory Tribunal Act 1992,* the Tribunal is required to consider various matters and indicate what regard it has had for them. These matters are considered in sections 4, 5 and 6, and issues are raised to which the Tribunal seeks responses.

4.1 Section 15 requirements relating to costs and efficiency

Sub-sections of s15 of the IPART Act 1992 require the Tribunal to give consideration to matters relating to the costs and efficiency of agencies:

* *the cost of providing the services concerned [s15(1)(a)]*
* *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)]*

In providing their services, agencies incur operating and capital related costs. Generally, operating costs relate to the expenditure required to provide services and to maintain the assets used in providing those services in the short term. Capital costs relate to the replacement of existing assets to maintain service capacity in the longer term, and the commissioning of new assets to expand and enhance services to meet standards. In general, the Tribunal encourages competition in order to promote efficiency and minimise costs as well as to reduce the level of regulation that might otherwise be required.

There is a significant variation in the size of operation of the four metropolitan water suppliers. Consequently, there is considerable variation in their operating cost levels, capital expenditure, and the efficiency of each. In examining future expenditure, the Tribunal will take into consideration possible trade-offs between operating and capital expenditure. The Tribunal will be requiring the agencies to deliver least-cost solutions including, if possible, demand management.

In determining a medium-term price path for the water agencies, the Tribunal is concerned to ensure that they:

a) have sufficient operating expenditure to provide for the efficient operation and efficient expansion of the system while
b) maintaining service and safety standards at appropriate levels. Required standards may be increasing in some cases.

The Tribunal is concerned that the determination not reward inefficient investment operations and practices. An independent consultancy will review the operating and capital expenditure requirements of each agency. This study will help the Tribunal to evaluate the appropriateness of each agency's expenditure level. The study will be available to the public in December 1999.

4.1.1 Operating expenditure

Operating costs refer to the operations and services, maintenance and administration costs incurred at the core business level of the water agencies. Operating cost trends provide a measure of how efficient a water provider is in areas which are relatively more controllable in the short run. Operating costs in the water industry are significant as they cover items such as labour, materials, contracting, and energy costs. These determine the level of distribution, treatment, and collection costs.

Table 4.1 summarises the overall operating expenditures of the four agencies. Based on information provided by them, the Tribunal has prepared a report on the performance of each agency. Detailed analysis of the information on operating costs can be found in a recent report on the performance of the four metropolitan water agencies.[74]

Table 4.1 Operating expenditure trend (1997/98$m)
(excludes depreciation and interest)

Utility	1993/94	1994/95	1995/96	1996/97	1997/98	Annual average change
Sydney Water	717	700	631	663	672	-1.6%
Hunter Water	64	65	63	65	56	-3.2%
Gosford Council	17	18	18	18	19	3.3%
Wyong Council	17	18	18	18	19	2.5%

Source: Annual Information Returns. (a consolidated view is taken of all agencies)

Hunter Water's overall operating costs have remained stable in real terms in recent years. However, it achieved a significant decrease in the most recent year. Sydney Water's costs declined for the first three years of the period shown. However, its costs have increased in the last two years, mainly as a result of an increase in build-own–operate (BOO) costs. Gosford Council's and Wyong Council's operating expenditures have increased moderately.

As shown in Table 4.2, on the basis of operating cost per property, the two corporations have achieved significant reductions while the two councils have generally maintained their levels.

74 IPART, *Water Industry Overview Report 1997/98*, October 1999.

Table 4.2 Operating expenditure per property (1997/98$) (excludes depreciation and interest)

Agency	1993/94	1994/95	1995/96	1996/97	1997/98
Sydney	497	467	412	425	420
Hunter	361	348	325	304	297
Gosford	298	318	318	291	312
Wyong	365	373	364	352	367

Source: Annual Information Returns (a consolidated view is taken of all agencies).

At the mid term review of the price paths of Sydney Water and Hunter Water in June 1998,[75] the Tribunal questioned the two corporations about the impact of their reduced expenditure on environmental and operating standards.[76] The two corporations commented that they had met the required standards. This was evidenced by the positive results of the audit of the corporations' performance for 1995/96.[77]

The Tribunal seeks comments in relation to the agencies' recent operating expenditure trends.

The Tribunal seeks supporting evidence from the agencies regarding the appropriateness of their forecast operating expenditure levels.

4.1.2 Capital expenditure

The agencies need adequate funding to meet their capital expenditure. This is a key driver of their cash needs. Regulation should provide the appropriate incentives to discourage over-investing in infrastructure (ie gold plating). On the other hand, regulation should encourage investment essential to meet agreed service standards.

It is reasonable to expect that all the agencies will have robust procedures in place for forecasting capital expenditures, given the nature of their business, which is capital intensive, has long lived assets, and is characterised by 'lumpy' investments.

In its review of the medium term price paths for Sydney Water and Hunter Water, the Tribunal noted that the two water corporations had not been achieving their forecast levels of capital expenditure.[78] To a lesser extent, this trend continued in 1997/98. The Tribunal is concerned that the agencies should meet all applicable standards at efficient cost.

Recent capital expenditure trends for the four agencies are summarised in the table below:

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75 IPART, *Sydney Water Corporation - Review of Medium Term Price Path and Determination from 1 July 1998,* June 1998; *Hunter Water Corporation - Review of Medium Term Price Path: 1996-2000,* June 1998.

76 The two corporations operate as corporatised entities under the State Owned Corporations Act. They are required to meet targets for operating and environmental standards set under their operating licences.

77 Licence Regulator, *Report to the Minister on the 1996 Operational Audit of the SWC;* Licence Regulator, *Report to the Minister on the 1996 Operational Audit of the Hunter Water.*

78 IPART, *Sydney Water Corporation - Review of Medium Term Price Path and Determination from 1 July 1998,* June 1998, p 14; *Hunter Water Corporation - Review of Medium Term Price Path: 1996-2000,* June 1998 p 6.

Table 4.3 Gross[79] Capital Expenditure (1997/98$m)

Utility	1993/94	1994/95	1995/96	1996/97	1997/98
SWC	387	477	231	187	311
HWC	52	46	47	26	51*
GCC	8	7	9	5	6
WSC	3	4	12	10	10

Source: Annual information returns (Consolidated view of all entities).
* updated information provided by Hunter Water, September 1999.

For the bulk water industry, the Tribunal completed a review of the Department of Land and Water Conservation's asset management processes in July 1997.[80] A similar review of the water agencies' capital expenditure and asset management practices has been commissioned by the Tribunal for this inquiry. This will assist the Tribunal in linking pricing to future capital expenditure requirements.

The Tribunal seeks information from each of the agencies regarding its capital works program and the rationale for it.

4.1.3 Mix of operating expenditure versus capital expenditure

The Tribunal recognises that alternatives to capital expenditure may include increased operating expenditures on maintenance or on demand side management options. Trade offs between operating expenditure, capital expenditure, and service levels must also be recognised.

The Tribunal considers that the agencies, rather than the Tribunal, are best placed to determine their appropriate mix of operating expenditure and capital expenditure. Nevertheless, the Tribunal requires information from the agencies on the basis for their mix. To this end the Tribunal has commissioned a consultancy to review the appropriateness of the agencies operating and capital expenditure. The consultancy will take into consideration possible trade offs between the two.

The Tribunal seeks information from the agencies on the manner in which they have taken into consideration the trade offs between operating expenditure, capital expenditure and service levels.

4.1.4 Long run marginal cost

The water and sewerage industries are very capital intensive. Costs do not vary greatly over the short term, even with different levels of usage. Substantial lead times are required for the construction of major infrastructure. For that reason, usage charges are often related to the long run marginal cost of supply.[81] Access (fixed) charges are often calculated as a residual, that is, the difference between revenue raised from usage charges and the total

79 Gross expenditure includes assets funded or contributed by external parties, ie developers.
80 Independent Pricing and Regulatory Tribunal, *Bulk Water Prices from July 1997*, Determination No.6, September 1997.
81 Government Pricing Tribunal, *Inquiry into Water and Related Services*, October 1993, p 98.

revenue requirements of the water agency.[82] In this way, prices provide appropriate signals for the cost of the marginal use of water. However, long run marginal cost is very difficult to calculate.

The Tribunal seeks comments regarding the nature of the water agencies' long run marginal cost of supply. The Tribunal requires the agencies to indicate the weight given to LRMC in structuring their pricing proposals.

4.1.5 Efficiency

In relation to the water agencies, efficiency can be defined as delivering services which meet the community's requirements at minimum cost. Given the recent emphasis on pricing reforms in the water industry in Australia, the four urban water agencies have been encouraged to improve their efficiency and productivity by reducing the costs of service provision.

Cost drivers

In order to assess changes in the efficiency of the water agencies, it is important to understand the principal cost drivers in the water supply industry. These include:

- growth in demand: factors affecting the demand for services include population growth, urban expansion, industrial development, and environmental or regulatory control
- economic conditions
- dividend requirements: the cost of equity to the business will be influenced by the dividends required by the owners of the water utilities
- technological developments
- regulations and government policies
- quality of service standards
- conditions of infrastructure assets
- efficiency level.

These cost drivers have some effect on all water agencies. However, the impact of an individual cost driver on costs may vary from agency to agency. Also, the Tribunal recognises that certain cost drivers, such as economic conditions, are outside the control of the agencies.

Operating cost per property

Operating costs are often referred to as directly manageable costs. They provide a useful basis for assessing changes in efficiency. The operating cost per property ratio permits an inter-agency comparison of operating costs in terms of a per unit measure. This ratio is summarised for the four metropolitan agencies in the figure below.

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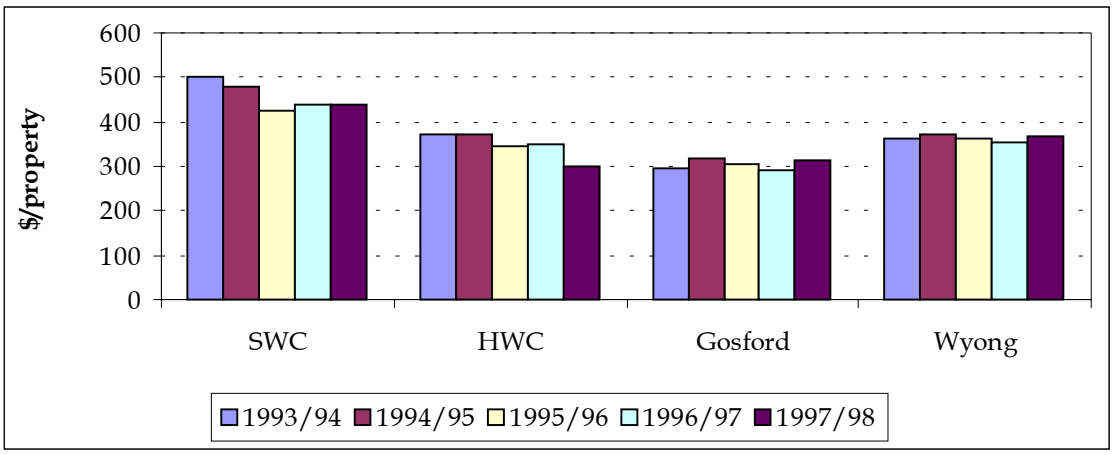
82 Or more specifically, where demand for access is price insensitive (ie customers will still want to be connected no matter what the connection charge), the access charge is calculated as the revenue needed for the agency to break even when it minimises costs. This gives it an incentive to minimise costs.

Figure 4.1 Operating costs per property (1997/98$)
(includes contracting costs)



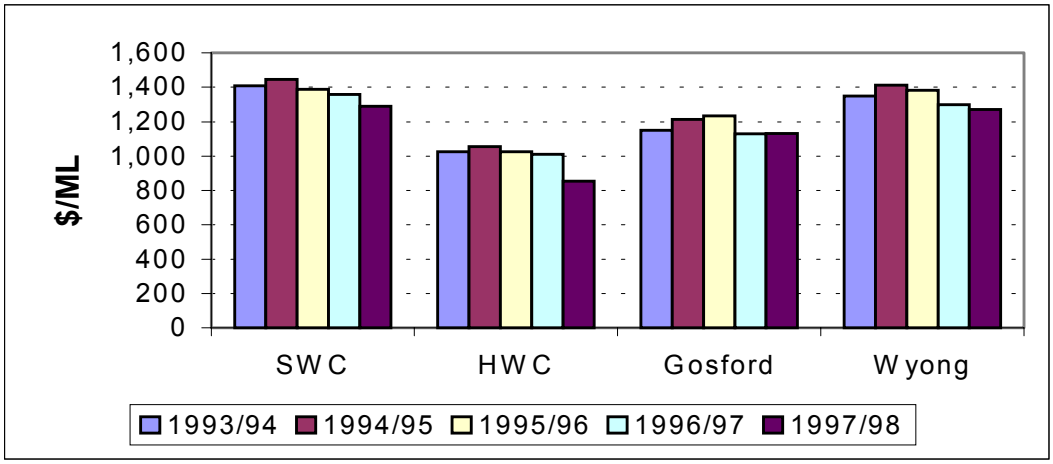
Source: Annual information returns.
Note: Information is from a consolidated view of the four agencies. SWC (Sydney Water), HWC (Hunter Water).

On the basis of operating cost per property, the two corporations have achieved increases in efficiency while the two councils have maintained their levels. Sydney Water's costs have increased in the past two years in response to a rise in BOO costs.

Operating costs by volume

Another measure of the relative efficiency of the four metropolitan agencies in providing water services is costs per unit of output. The figure below provides a breakdown of the operating costs per ML of water delivered.

Figure 4.2 Operating costs by volume (1997/98$ per ML)



Source: Annual information returns.
Note: Information is from a consolidated view of the four agencies.

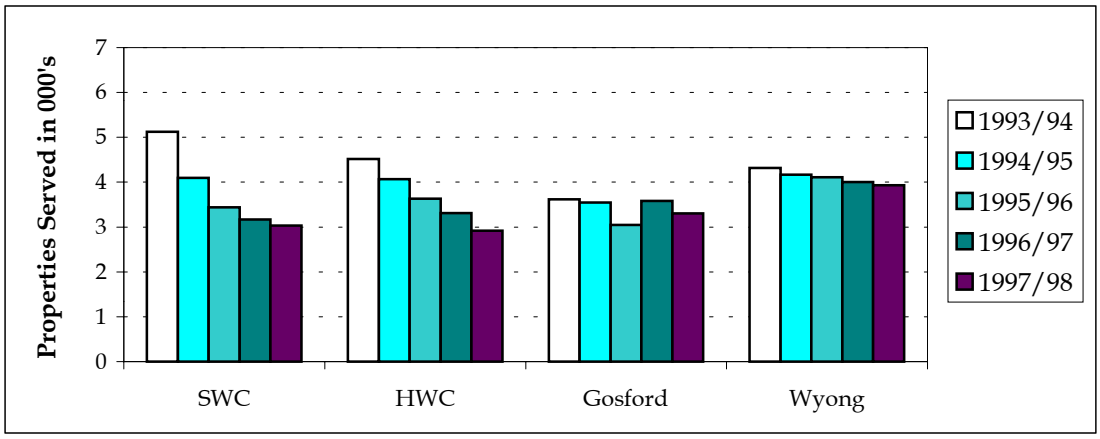
On an operating cost by volume basis, in general the agencies have improved their efficiencies over the period, albeit in a different trend to that per property, as shown above. It should be noted that this measure will depend on the proportion of large industry in each agency's customer base. For example, industry forms a large component of Hunter Water's customer base.

Labour productivity

One method of determining labour efficiency is to compare employee numbers with the number of properties serviced (bearing in mind that this can be distorted by changes in the level of contracting out). The figure below shows a downward trend since 1993/94 in the total number of employees required by all the agencies to serve every thousand properties. Since 1992/93, Sydney Water and Hunter Water have achieved large reductions in their workforces along with strong growth in their customer bases. The number of employees needed to service every thousand properties is now significantly less for the two corporations.[83]

The falling trend in the use of labour may also be a result of increasingly sophisticated technology being employed by the water agencies. This is likely to lead to more reliance on capital as an input to an industry already considered to be heavily capital intensive.

Figure 4.3 Total number of employees per 1000 properties served



Source: Annual information returns.
Note: All data refers to the total employee numbers for the water agencies including the corporations' non-regulated businesses. Gosford and Wyong Councils' employee numbers relate to their water and wastewater businesses only.

Table 4.4 compares the change in labour costs per employee since 1993/94. The trend in labour costs per employee is difficult to interpret, but generally seems to have increased during this period. Despite reductions in employee numbers instituted by Sydney Water and Hunter Water, labour costs have not declined at the same rate. This may be due to higher wages generally, or it may be the reduction in employee numbers has occurred through the departure, primarily, of lower paid employees. Alternatively, it may reflect the one-off redundancy costs of reducing the size of the workforce. At this stage the expected savings in costs are lagging behind increases in labour productivity.

83 Whilst this may be affected by the level of contracting out, only Hunter Water has shown a significant move to contracting out.

Table 4.5 Labour costs per employee
(excluding provisions, 1997/98 $000)

Agency	1993/94	1994/95	1995/96	1996/97	1997/98
Sydney Water	44	52	56	50	51
Hunter Water	48	45	44	49	53
Gosford Council	29	28	33	29	39
Wyong Council	35	25	31	34	36

Source: Annual information returns (figures reflect a consolidated view of each agency).

A constant ratio over time indicates that changes in employee numbers are matched by changes in employee costs. Only Wyong Council has equivalent ratios at the beginning and end of the review period.

4.1.6 Price comparisons

For information, Table 4.6 illustrates the difference in charges for the average residential customer across the four metropolitan water authorities. When the water and sewerage bills are combined, the total annual charge for average residential customers in each area are quite similar, with Sydney Water having the highest bill. On this basis of comparison, the two corporations have relatively higher water charges and relatively lower sewerage charges than the two councils. Hunter Water currently has the lowest average annual bill.

Table 4.6 Average residential bill comparison
(1999/2000 prices for consumption of 220kL per annum)

Charges		Sydney Water	Hunter Water	Gosford Council	Wyong Council
Water	Fixed	80.00	24.60	153.00	176.00
	Usage	195.25	202.84	13.00	12.00
	Total	**$275.25**	**$227.44**	**$165.00**	**$188.00**
Sewerage	Fixed	290.40	202.58	371.00	347.00
	Usage	0.00	52.36	0.00	0.00
	Total	**$290.40**	**$254.94**	**$371.00**	**$347.00**
Environmental		0.00	40.00	0.00	0.00
Total		**$565.65**	**$522.38**	**$537.00**	**$535.00**

Source: current Tribunal Price Determination for each agency.

Table 4.6 also highlights that the two corporations receive the majority of their water revenue via the usage charge, whereas the two councils receive most of their revenue via the fixed charge. This is largely a reflection of the existence of the 'prepaid water allowance' in Gosford and Wyong Councils. This issue is discussed further in section 7.1.

Further, Gosford Council currently charges $40 per assessment for a drainage levy, while Wyong Council's charge for drainage (approximately $45 per customer[84]) is contained as a component within the water and sewerage charges listed above. Sydney Water charges some of its residential customers $16 per annum for drainage, while Hunter Water levies a charge of $24.30 per annum. When the drainage levy is taken into account, Sydney Water's average bill remains the highest (at $581.65), followed by Gosford Council at $577.00, Hunter Water at $546.68, and Wyong Council at $535.00.

84 Facsimile from Mr G Ashe, Manager, Finance and Resources, Wyong Council, dated 29 September 1999, advised that a charge of approximately $45 per customer is included as a 'component' of Wyong's water and sewerage charges (but this is not articulated as a separate charge).

5 ISSUES TO BE CONSIDERED UNDER SECTION 15 OF THE IPART ACT - FINANCIAL VIABILITY

5.1 Section 15 requirements relating to financial viability

Sub-sections of s15 of the IPART Act 1992 referring to the financial viability of agencies require the Tribunal to consider:

* *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)]*

One of the aims of the Tribunal's financial framework is to determine the level of income that agencies require to remain financially viable. The financial framework can establish a range of prices between a floor and a ceiling price.

Although the Tribunal must have regard to environmental, social and customer service standards, the resulting prices must still be sufficient to maintain the financial viability of the organisation under review.

5.1.1 Asset valuation

The Tribunal is required to have regard to the appropriate rate of return on public sector assets. The value of the underlying asset base is critical to evaluating the rate of return and hence the revenue requirement of each agency.

Economic analysis provides important input for the valuation of existing assets for the purposes of regulation. However, it is not evident that one specific methodology is clearly superior to another. Economic principles provide lower and upper bounds. Within these bounds, the regulator must exercise judgement.

Through the Council of Australian Governments' (COAG) agreements, Australian Governments have given support to the deprival value methodology for asset valuation. This methodology originated in the insurance industry. It is based on the compensation required if an owner is deprived of an asset through, for example, fire or theft.

Deprival valuation requires the following underlying asset values to be determined.

- **Replacement cost** This is the current cost of replacing the existing assets with identical assets in the same condition. This cost is arrived at by depreciating new assets to the age of the assets they are replacing. For regulatory purposes, an additional condition is applied, whereby costs are adjusted for technological developments and poor prior investment decisions such as bad location or over capacity. This process is called 'optimisation'. The asset value so derived is called the 'depreciated optimised replacement cost' (DORC). DORC is an 'interpretation' of the concept of replacement cost.
- **Economic value (recoverable amount)** This is the value of the future revenue stream generated by the assets less cash operating costs and capital expenditure. The figure

derived is adjusted to today's dollars to exclude future inflation and to allow for the time value of money (ie interest cost). If the resulting amount is less than DORC, the assets are worth less than the cost of replacement.

- **Net realisable value** If the assets are surplus to requirements (and therefore would not be replaced) they are valued at what they could they be sold for on the open market.

Calculating DORC requires the service provider to judge whether productivity can be increased by re-configuring (ie optimising) the system. Calculating the recoverable amount requires judgement on future price changes and productivity gains. Depending on the regulator's determinations in relation to pricing and matters such as depreciation, asset lives and productivity gains, values adopted for regulatory purposes can differ from those used for statutory reporting.

The Tribunal seeks views on the appropriate valuation to be adopted for the agencies' assets for regulatory purposes.

In 1996, for price setting purposes, the Tribunal established a valuation for Sydney Water's and Hunter Water's asset bases resulting in a *regulatory asset base* (RAB). The RAB process determined an initial regulatory asset value as at 30 June 1996 based on the net present value of future cashflows at 1995/96 price levels. The procedure requires the RAB to be adjusted through time (ie 'rolled forward') to take account of refurbishment or replacement of existing assets and new capital expenditure.

The term, 'asset roll forward' refers to the way in which the value of the initial capital asset base, once determined, is adjusted over time to reflect changes in the value of its productive capacity, and new investment in the business. This matter is addressed in detail in a Tribunal discussion paper,[85] which examines the issues involved. The following excerpts from the paper summarise the issues:

> In considering the revenue requirement and the roll-forward of the asset base, it is essential to clarify what the initial regulatory asset base represents. The approach adopted for the initial asset valuation, and the subsequent income required to generate a required rate of return on those assets, will be influenced by the view of the nature of the asset base.
>
> The question which arises is whether the regulatory asset base represents shareholder financial investments in the firm (ie the maintenance of the financial equity of the business in real terms), or the physical assets of the firm (ie the ability of the enterprise to maintain production of the same level of goods and services over time).[86]
>
> Particular issues for consideration under the *physical capacity* view of RAB include:
> - How should return of capital be recognised (eg economic depreciation, renewals annuity); what value should be used (ie should return of capital be calculated on the deemed regulatory asset base, current cost of the assets, or the actual cost of the assets); what are the implications for regulatory accounts as against statutory accounts; and are any other adjustments required?
> - The treatment of future capital expenditure on new assets within a regulatory period.

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85 IPART, *Rolling Forward the Regulatory Asset Bases of the Electricity and Gas Industries*, Discussion Paper, January 1999.

86 ibid, p 9.

Particular issues for consideration under the *financial investment* view of RAB include:
- Should the components of the asset base be indexed for inflation, and if so by what method (eg general inflation index or asset specific index)?
- The treatment of future capital expenditure on new assets raises further difficulties:

Which criteria should be used for including capital expenditure in the asset base? What is the appropriate timing for recognising capital expenditure in the asset base? Does the regulator sign off on capital expenditure ex ante or ex post? If ex ante, is this revisited during the regulatory period? What are the implications for capital efficiency?

Each option has significant implications in terms of the incentives and cashflows of the agencies over time. The method of rolling forward the asset base also has implications for the reconciliation of regulated entities' accounting and regulatory financial statements and future asset values.[87]

The Tribunal seeks views as to how the regulatory asset base, once determined, should be rolled forward over time.

5.1.2 Return on capital

Without an appropriate rate of return, either an over, or an under investment of resources in the water industry is likely to occur. However, reliance on rate of return as the sole measure of financial performance portrays the financial health of an enterprise inadequately. Nor does such an approach provide appropriate incentives for a regulated agency to operate more efficiently. Therefore, when making pricing determinations the Tribunal assesses rate of return measures as part of a suite of financial indicators.

The rate of return may be set on the basis of a weighted average cost applicable to each source of funds, equity and debt. This is referred to as the 'weighted average cost of capital' (WACC). The cost of debt can be estimated by considering the premium to the risk free rate at which the agencies are likely to raise debt in current market conditions. The cost of equity can be estimated by reference to the capital asset pricing model (CAPM).

A full discussion of the issues affecting rate of return and the Tribunal's current thinking on those issues can be found in the Tribunal's recent discussion paper on rate of return for electricity distribution networks.[88]

One of the basic problems for the Tribunal in the water industry is the ratio of debt to equity of the agencies because this is often derived artificially (see section 5.1.6).

The cost of debt varies depending on the degree of gearing and the term of the debt. The cost of long term debt can be established by reference to the Commonwealth 10 year bond rate. The cost of short term debt can be established by reference to the 180 day bank bill. These can be used to establish the risk free rate. The agencies' cost of debt will be higher than this rate because of an implied greater degree of risk. The difference between the cost of agency debt and the risk free rate is termed the 'debt margin'.

87 Ibid, p 15.
88 IPART, *The Rate of Return for Electricity Distribution Networks*, November 1998.

So far, the Tribunal has used the CAPM as a guide for assessing the cost of equity. However, it realises that there is no perfect theoretical answer to the problem of setting rates of return.

The Tribunal seeks comments on its use of the CAPM as a guide to establishing the cost of equity. Comments are sought on whether there are better methods which yield more reliable results.

The Tribunal also seeks comments on a reasonable rate of return for the industry in general.

The basis of the CAPM model is the relationship between risk and return. In establishing a required return for a specific stock the essential elements are estimation of the:

- risk free rate (sometimes measured with reference to the 10 year Australian Commonwealth bond)
- risk premium for the market as a whole
- stock's risk relative to that of the whole market.

The Tribunal seeks comments on the appropriate parameters to be used in determining the agencies' WACC using CAPM.

5.1.3 Returns to Government

Sydney Water and Hunter Water currently pay tax equivalents and dividends to the State Government as part of the NSW Government's Financial Distribution Policy. The Competition Principles Agreement encourages Governments to place agencies under commercial pressure.

The two councils have not yet made similar payments. However, the councils report that, for the 1999/2000 year, they will be issuing special purpose financial reports with notional tax equivalents included (see section 2.2.5).

The transfer of cash distributions has obvious direct effects on the cash requirements of agencies, the rate of return and ultimately, regulated prices. Whilst the distributions of the water corporations are used to fund other NSW State Government programs, it is not clear where cash distributions from the water businesses of councils should be directed.

5.1.4 Return of capital

One of the factors the Tribunal has to consider when making pricing determinations, is the cost to the agencies of the reduction in service potential of assets, often referred to as 'asset consumption'. In accounting terms, asset consumption is equated to depreciation, which is an apportionment of either the actual cost of the asset, or the cost of a modern equivalent, over the life of an asset. If prices are adjusted to include asset consumption costs, there is said to be a 'return *of* capital' to the owner. Allowing for a rate of return provides the owner with a return *on* capital.

Depreciation is an accounting tool which matches costs with revenue. In accounting theory, the funding of assets replacement is a separate concept to depreciation. Nonetheless, depreciation is often used as a measure to estimate the funds required for asset replacement.

Most assets in the water industry are long lived. The water agencies will not incur replacement expenditure for most of their civil works in the foreseeable future. The agencies will incur replacement expenditure for their mechanical and electrical works and will incur periodically major maintenance on their civil works.

In general, asset lives have been underestimated and often the replacement cost of existing assets, once corrected for technological change, over estimated. This, combined with the long asset lives, can result in large cash accumulations in the agencies.

From a commercial perspective, agencies will not make new investments if prices do not include an allowance for asset consumption. Future generations may be forced to pay for the benefits received by the current generation if asset consumption costs are not recovered as incurred.

The Tribunal does not wish to distort the choice between operating and capital expenditure. It wishes to minimise the life cycle costs of all assets. This difficulty has been compounded by agencies over estimating their future capital expenditure.

A distinction can be drawn between past expenditure and future expenditure. While past expenditure may not be optimum, the correct incentives should be provided for efficient new investments. The Tribunal does not wish to reward sub optimal expenditure.

To help address these difficulties the Tribunal has commissioned consultants to undertake an expert review of the agencies' operating and capital expenditure requirements.

The Tribunal seeks comments on how prices should be calculated to provide for the return of capital costs.

5.1.5 Financial indicators

To ensure that a balanced and complete financial picture of an agency is revealed, the Tribunal utilises a range of financial measures. The Tribunal uses the financial measures to judge the historic financial performance of agencies and the effects that prices may have on future financial performance. An important part of this process is the utilisation of a range of indicators derived from financial information supplied by the agencies. The indicators are based on records of cashflow and profit and loss.

A list of the financial indicators currently used by the Tribunal is provided in Table 5.1.

5.1.6 Capital structure

One of the Tribunal's principal imperatives is to set prices that would emerge naturally if the organisations under its jurisdiction were operating in competitive markets. Markets in the private sector tend to influence not only competitive prices, but also the capital structures and rates of return obtained by participants in those markets.

Table 5.1 Financial indicators

FINANCIAL INDICATORS	GENERAL DESCRIPTION	DEFINITION/COMPONENTS
Funds Flow Adequacy	Ability to generate funds to cover primary cash requirements	(Net Profit after Tax + Depreciation & Amortisation) / (Dividends + Capex)
Funds Flow Interest Coverage	How many times funds from operations covers interest payments	(Net Profit after Tax + Depreciation & Amortisation + Interest) / Interest
Funds Flow Net Debt Pay Back	How many years will it take to payback total debt	(Total Debt– Cash) / (Net Profit after Tax + Depreciation & Amortisation)
Internal Financing Ratio	Funds retained as a proportion of capital expenditure	(Net Profit after Tax + Depreciation & Amortisation – Dividends) / Capex
Pre-tax Interest Coverage	How many times profit before tax covers interest payments	Profit before Interest and Tax / Interest Expenses
Total Debt / Total Capital	Proportion of debt to equity capital	Total Debt / (Total Debt + Total Equity)
PBIT / Total Revenue	Ratio of profit realised per total revenue	Profit before Interest and Tax / Total Revenue
PBITDA /Total Revenue	Ratio of profit plus depreciation per total revenue	(Profit before Interest and Tax + Depreciation & Amortisation) / Total Revenue
PBIT / Funds Employed	Return on funds employed	Profit before Interest and Tax/ (Total Debt + Total Equity)
PBIT	Profit before interest and tax	Profit before Interest and Tax
PBITDA	Profit before interest and tax and depreciation & amortisation	Profit before Interest and Tax + Depreciation & Amortisation

Although the Tribunal does not rely solely on measurements of return in its determinations, they nonetheless represent an important item in the list of indicators utilised by the Tribunal. The capital structure (ie the proportions of debt and equity) in turn can significantly influence the calculation of the rate of return (usually measured as the weighted average cost of capital). Capital structures in the public sector are usually derived artificially. Therefore the Tribunal must judge the appropriateness of a specific capital structure when analysing rate of return indicators.

The Tribunal recently issued a discussion paper[89] on rate of return and capital structure issues in the electricity industry. The paper comments that:

- in recent gas access determinations, a gearing level of 60 per cent was assumed
- relatively high gearing levels are typically associated with lower risk projects such as regulated monopolies
- the gearing levels of the now privately owned Victorian electricity distributors are high relative to other listed companies.

The Tribunal seeks comments on an appropriate capital structure for the water agencies, either in terms of general principles or on an individual agency basis.

89 Independent Pricing and Regulatory Tribunal, *The Rate of return for Electricity Distribution Networks*, November 1998.

6 ISSUES TO BE CONSIDERED UNDER SECTION 15 OF THE IPART ACT – CONSUMER PROTECTION, STANDARDS AND ENVIRONMENTAL ISSUES

6.1 Consumer protection

Under section 15 of the IPART Act, the Tribunal is charged with protecting consumers from abuses of monopoly power in terms of prices and standards of service.

* *the protection of consumers from abuses of monopoly power in terms of prices, 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 determination and recommendations [s15(1)(k)]*

However, under the NSW regulatory framework the Tribunal is a price regulator only. It does not regulate the agencies in relation to standards per se.

6.1.1 Effect of pricing proposals on the cost of living

Water, sewerage and drainage services make up a relatively small, but nevertheless important, component of total outlays by households. The significance of these charges varies between households, depending on their disposable income.

The contribution of water and sewerage to the 1999 June quarter CPI[90] index of 122.3 was 1.19 points or 0.97 per cent. Consequently, it is not expected that a future price determination by the Tribunal will have a significant impact on general inflation.

6.1.2 Constraints on price increases

In order to lessen the impact of its price determination on customers, and protect customers from any abuse of monopoly power, in its final determination the Tribunal may establish limits on the price increases that the water agencies may introduce in any given year.

The Tribunal seeks views on the nature and magnitude of possible price constraints. In particular, the Tribunal requires the agencies to propose and justify appropriate constraints corresponding to their pricing proposals.

6.1.3 Social impacts

To minimise any adverse impact, especially on residential customers, the Tribunal monitors the effects of its pricing determinations on consumers.

Gosford Council and Wyong Council both include a 'pre paid water allowance' of 200 kL in their base charge. Both councils have proposed removing this allowance and subjecting all consumption to a usage charge (as discussed further in section 7.1). The Tribunal wishes to be informed of the impacts that removing the prepaid allowance will have on customers, and what measures the agencies propose to address these.

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90 Weighted average of eight capital cities quoted in *Consumer Price Index Australia*, December Quarter 1998, Australian Bureau of Statistics, p 5 and p 15. (The index for Sydney was 122.4.)

The Tribunal requires that the agencies' pricing proposals be accompanied by detailed customer impact analyses showing the full effect of any changes, and details of how the agencies intend to manage these impacts.

6.2 Standards

The IPART Act requires the Tribunal to consider:

* *standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise) [s15(1)(l)]*

There is a trade off between service standards and the cost of service provision. The Tribunal wishes to establish whether the costs the agencies incur accord with their service standards, and whether services standards meet customer expectations. The Tribunal considers that the agencies should take into consideration customers' preparedness to pay for an appropriate level of service. The agencies also have to meet standards under contractual and legislative requirements (including the Operating Licence).

6.2.1 Compliance with Standards

The operating licences of the corporations set out a number of standards with which the corporations are required to comply. These include specific operating standards relating to water and sewerage systems, viz: water quality, continuity of water supply, water pressure, and health requirements for drinking water.

The current operating licences of Hunter Water and Sydney Water require each corporation to meet the health-related aspects of the (1996) NHMRC and ARMCANZ Guidelines for Drinking Water Quality in Australia. Gosford and Wyong Councils are also currently complying with the health-related components of the 1996 Drinking Water Guidelines, following their endorsement by the NSW Department of Health.

The Tribunal seeks comments on the water agencies' compliance with their relevant standards and guidelines, in order that it may gauge the appropriateness of the costs incurred for the purpose of setting prices.

6.2.2 Service Levels

The reliability of a water supply system can be measured by the number of interruptions in supply which occur because the water main is shut down for repairs and maintenance.

There are two types of water supply interruption: planned interruptions for routine maintenance, or unplanned interruptions resulting, for example, from burst water mains.

The reliability of sewerage systems can be measured by the number of incidents of sewage overflow or sewer blockage. Resulting in sewage spills, these incidents prevent customers from disposing of their sewage.

The results of these indicators of the agencies' service levels since 1992/93 are presented in the table below. Breaks per 100 km of mains are used as a measure of water supply interruptions as consistent historical data on this indication is available from all four water agencies.

The table below reveals variability in system reliability for water supply and sewerage.

Table 6.1 Water supply and sewerage reliability

	Unit	1993/94	1994/95	1995/96	1996/97	1997/98
Main breaks per 100 km	no/100km					
SWC		35	27	20	49	50
HWC		47	49	44	39	52
Gosford		19	50	30	31	44
Wyong		5	4	8	3	7
Number of incidents of sewage overflow	no/100km					
SWC		Na	Na	Na	Na	Na
HWC		96	100	72	58	52
Gosford		34	na	59	39	49
Wyong		0.7	0.7	0.4	0.6	0.1
Number of incidents of sewer blockages	no/100km					
SWC		Na	Na	Na	Na	Na
HWC		100	104	72	75	68
Gosford		44	101	73	53	49
Wyong		35	37	43	35	57

Source: Annual Information Returns.
Notes: SWC's figures for Main Breaks were updated from 1996/97 to breaks and leakages

Although indicators presented above are widely used in the industry,[91] caution should be exercised in using them. These indicators can be affected by the relationship between the age of the infrastructure and the growth rate of the customer base of agencies and prevailing weather conditions (as well as the level of 'gold plating').

The Tribunal seeks comments on each agency's level of service provision and whether these meet customer expectations bearing in mind the prices charged for those services. Comment is also sought on whether there is agreement on 'reasonable performance' in terms of these indicators.

6.3 Environmental issues

6.3.1 Ecologically sustainable development

In making determinations and recommendations, the Tribunal must have regard to the need to maintain ecologically sustainable development (ESD) (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by establishing appropriate pricing policies which take account of all the feasible options available to protect the environment.

Section 6(2)(c) of the *Protection of the Environment Administration Act 1991* defines ecologically sustainable development and outlines how it can be achieved (see Box 2). Ecologically sustainable development has been adopted as a goal by state, federal and local governments. In 1992, NSW along with other Australian Governments endorsed a National Strategy for Ecologically Sustainable Development and signed the Intergovernmental Agreement on the

91 Water Service Association of Australia, *The Australian Urban Water Industry WSAAfacts'96*.

Environment 1992. The agreement sets out the guiding principles of ecologically sustainable development.[92] One of these principles involves improved valuation, pricing and incentive mechanisms (see Box 3).

Box 2 Protection of the Environment Administration Act 1991

Ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

a) The precautionary principle - namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

b) Inter-generational equity - namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

c) Conservation of biological diversity and ecological integrity.

d) Improved valuation and pricing of environmental resources.

Box 3 Intergovernmental Agreement on the Environment 1992

The principles of Ecologically Sustainable Development are:

1. Precautionary principle

Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

- careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and
- an assessment of the risk-weighted consequences of various options.

2. Intergenerational equity

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

1. Conservation of biological diversity and ecological integrity

Conservation of biological diversity and ecological integrity should be a fundamental consideration.

2. Improved valuation, pricing and incentive mechanisms

Environmental factors should be included in the valuation of assets and services

- polluter pays ie those who generate pollution and waste should bear the cost of containment, avoidance, or abatement
- the users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes
- environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.

92 Section 3.5 of the *Intergovernmental Agreement on the Environment 1992*.

State legislation requires state owned corporations (such as Sydney Water Corporation and Hunter Water Corporation) and local councils to either conduct their operations in compliance with the principles of ESD, or take ESD into consideration.

The *State Owned Corporations Act 1989* requires Sydney Water Corporation and Hunter Water Corporation to conduct their operations in compliance with the principles of ESD.[93] A stated objective of Sydney Water Corporation is to protect the environment by conducting its operations in accordance with the principles of ESD contained in Section 6(2) of the *Protection of the Environment Administration Act 1991*.[94]

The *Local Government Amendment (Ecologically Sustainable Development) Act 1997* requires councils to take into consideration ESD principles.[95]

To implement ESD principles, the water agencies may need to undertake a range of policies or actions. Pricing policies may need to be developed to support ESD.

The Tribunal seeks comments on how the concept of ecologically sustainable development can be practically incorporated in pricing policies and demand management policies for the water agencies.

6.3.2 Demand management

Demand management options are generally defined as actions taken by a water agency to reduce the demand for water or reduce the discharge of effluent. Demand management options which can be short term or long term (see Box 4).[96]

Demand management can reduce a water agency's costs, primarily by avoiding or deferring the need for new capital works, and also by reducing operating costs associated with pumping and water treatment. It can also reduce revenues and may have consequences for prices.

In July 1995, the Tribunal convened a Water Demand Management Forum[97] to develop a framework for assessing the cost-effectiveness of demand management options. The forum was established as a result of a Tribunal recommendation that the water agencies develop a framework for integrated least cost planning, and explore and institute demand management options.[98] The forum reported to the Tribunal on a framework for assessing demand management options in the water industry and presented a spreadsheet model. This model assessed demand management options based on input data relating to potential savings, adoption rates and costs.[99]

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93 Section 8(1)(c) of the *State Owned Corporations Act 1989*.

94 Section 21(1)(c) of the *Sydney Water Act 1994*.

95 Ecologically sustainable development as defined in the Intergovernmental Agreement on the Environment.

96 Water Demand Management Forum, *Water Demand Management: A Framework for Option Assessment*, March 1996, p 5.

97 The forum consisted of representatives of urban water agencies, government departments and community organisations.

98 Government Pricing Tribunal, *Inquiry into Water and Related Services*, October 1993, Recommendation 4.1 and 4.2, pp 53-55.

99 Water Demand Management Forum, *Water Demand Management: A Framework for Option Assessment*, March 1996.

Box 4 Demand Management

Demand management options include the following:

- Cost-reflective pricing, including drought or scarcity pricing, locality, seasonal pricing and time-of-use pricing.
- Universal customer metering to implement pricing measures.
- Operational measures, such as reticulation leakage detection and repair programs and pressure reduction.
- A communication strategy, including a community education campaign regarding demand management.
- Customer advisory services, eg the use of incentives for the installation of water efficient equipment.
- Reduction of water use by the water agency.
- Regulation of the efficiency of water-using equipment and processes, especially in new buildings and for garden watering.
- Use of reclaimed water to reduce the need for potable water.
- Water use restrictions, either on a temporary of permanent basis.

The Tribunal requested water agencies to report on which, if any, demand management measures they found to be cost-effective after applying the framework, and how and when any such measures could be implemented.[100]

The Tribunal invites comments on the water agencies' experience of applying the water demand management framework as developed by the Water Demand Management Forum.

The Tribunal seeks comments from the water agencies on their actions in relation to the recommendations of the Water Demand Management Forum.

In May 1997, the NSW Government established the Waterways Advisory Panel to report on whether Sydney Water Corporation's proposed tunnel from Lane Cove to North Head should proceed. The tunnel was proposed to address the problem of sewage overflows into Sydney Harbour during wet weather. The panel recommended that the tunnel proceed. A select committee was also established to review the proposed tunnel. The select committee recommended that the Tribunal, in partnership with Sydney Water, investigate measures to develop economic incentives for water reuse in NSW.

The Tribunal seeks comments on how to develop economic incentives for water reuse in NSW.

In its review of the price path for Sydney Water, [101] the Tribunal expressed its concern that the use of price may be losing its effectiveness as the prime method for influencing consumer behaviour relating to water usage. For example, the downward trend of average daily water consumption appeared to reverse in 1996/97 and 1997/98, with more water per person being used.

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100 Water Demand Management Forum, *Water Demand Management: A Framework for Option Assessment*, March 1996, Foreword.

101 IPART, Sydney Water Corporation: *Prices of Water Supply, Sewerage and Drainage Services: Review of medium term price path and determination from 1 July 1998*, June 1998, p 28.

The Tribunal invites views on whether price is an effective method for influencing consumer behaviour relating to water usage, and alternative demand management options for the water agencies.

Comments are also sought on the appropriate level of the usage price.

6.3.3 Environmental standards

Environmental standards include ambient environmental quality objectives and emission standards. Ambient environmental quality objectives establish maximum allowable levels of concentration of a pollutant for a given locality in the receiving environment. Emission standards relate to maximum allowable levels of concentration or mass of pollutants to be emitted from a particular discharge point. Environmental and emission standards are set by national and state processes and are generally developed with public consultation.

Higher environmental standards for water, wastewater and stormwater will have implications for capital expenditure by water agencies and for customers' bills. In 1993 the Tribunal recommended that water suppliers investigate the willingness of customers to pay for capital expenditure programs required to meet proposed standards. This consultation should be based on site specific information about a range of options.

At that time, the Tribunal also recommended against undertaking major capital expenditure to improve environmental quality without evidence that customers were willing to pay for such improvements. Water suppliers should not assume that price increases will be permitted if they decide to go ahead with capital expenditure in the absence of such information.[102]

The Tribunal seeks comments from the water agencies on their investigations of consumers' willingness to pay for capital infrastructure.

6.3.4 Stormwater

Stormwater is run-off from rainfall events. It flows into surface drains and underground pipes and ultimately into creeks, rivers, the harbour and the ocean. In cities, the proportion of stormwater run-off is higher than in the natural environment due to the presence of hard surfaces such as roads and roofs.

Stormwater collects animal wastes, fertilisers, pesticides, oil and refuse which pollute urban waterways. In addition, sewer overflows generally discharge into stormwater drainage systems, mainly during wet weather. Therefore, the concentration of pollutants in urban stormwater systems depends on run-off from land surfaces and sewer overflows. Studies undertaken by the EPA and Sydney Water indicate that stormwater contributes to the visual, pathogenic, and toxic pollution of waterways and is the major cause of pollution at a number of beaches.

No single authority has overarching responsibility for the provision of stormwater services within the Sydney basin. Water agencies, local councils and government departments (eg Roads and Traffic Authority[103]) share responsibilities for the provision of stormwater

102 Government Pricing Tribunal, *Inquiry into Water and Related Services*, October 1993, pp 69-72, Recommendation 5.1 and 5.2.

103 RTA is responsible for stormwater systems on freeways and state roads under its control.

services. The fragmentation of management responsibility produces problems of co-ordination and effective management to achieve desired quality and quantity outcomes.

Stormwater management plans

In its report for the mid-term review of Sydney Water, the Tribunal determined that stormwater charges would not change ahead of the implementation of stormwater management plans. This position was affirmed when the Tribunal conducted a review of Sydney Water's stormwater charges and expenditure in 1998.[104]

In April 1998, the Environment Protection Authority issued a legal direction under section 12 of the *Protection of the Environment Administration Act 1991* requiring councils to prepare stormwater management plans. The direction for councils in the Greater Metropolitan Region[105] required catchment-based plans to be prepared on a co-operative basis. Gosford City Council and Wyong Shire Council are required to prepare stormwater management plans.

The Tribunal invites comments on how commitments made in stormwater management plans can be incorporated into the price of stormwater services for the four metropolitan agencies.

Pricing reform

In its review of Sydney Water's stormwater charges, the Tribunal considered alternative pricing arrangements for stormwater services.[106] A key finding of the review was that the current basis of Sydney Water's charges for stormwater is inappropriate. Charges should, as far as possible, be catchment based and linked to environmental impacts.[107]

As part of the review, the Tribunal required Sydney Water to present the next major review with a pricing strategy consistent with the principles outlined in the report.[108]

The Tribunal seeks comments on appropriate pricing arrangements for stormwater services.

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104 IPART, *Review of Sydney Water Corporation's Stormwater Charges and Expenditure*, August 1998, Foreword.

105 The Greater Metropolitan Region includes Sydney, Newcastle and Wollongong. Gosford City Council and Wyong Shire Council are captured in this definition.

106 IPART, *Review of Sydney Water Corporation's Stormwater Charges and Expenditure*, August 1998, pp 14-17.

107 IPART, *Review of Sydney Water Corporation's Stormwater Charges and Expenditure*, August 1998, Foreword.

108 IPART, *Review of Sydney Water Corporation's Stormwater Charges and Expenditure*, August 1998, p 16.

7 ISSUES ARISING FROM EARLIER DETERMINATIONS

7.1 Gosford and Wyong Councils - pricing structure

Gosford and Wyong Councils currently have 'multi-part'[109] tariff structures which include a prepaid water allowance of 0.55 kilolitres per day as part of the usage charge. This results in a subsidy from low water users to high water users and may discourage water conservation. In the recent price determinations[110] for both councils, the Tribunal noted its support, in principle, for the removal of the prepaid water allowance, thereby establishing a two part tariff whereby every unit of consumption attracts a non-zero usage charge.

The removal of the prepaid water allowance may have an adverse impact on some groups of customers and the Tribunal will require information from the two councils on the potential impacts of the change before coming to a decision on the appropriate price structures.

The Tribunal seeks comments on the likely impacts of eliminating the prepaid water allowance and the implementation of a pure two part tariff pricing structure for Gosford City Council and Wyong Shire Council.

7.1.1 Pensioner rebates

Under the current pricing structures, the councils provide a rebate to pensioners of 50 per cent of their water availability (or access) charge, up to a maximum of $87.50.[111] In turn, the councils are reimbursed by the State Government for 55 per cent of revenue foregone in providing the pensioner rebate on the access charge. The State Government provides no reimbursement for revenue foregone from usage charges.

Elimination of the pre-paid allowance could significantly reduce water access charges and consequently the amount of pensioner rebate reimbursement available from the State Government. The result would be higher annual charges for pensioners or loss of revenue for the councils. In the Wyong Shire Council area, 25 per cent of accounts qualify for the pensioner rebate.

Wyong Shire Council suggests that the preferred solution would be for the Minister to specify under the Water Supply Authorities Regulation that the rebate should equal an amount equivalent to the combined water and sewerage access charge up to a maximum of $175.00. This would provide the same reduction to pensioners as is currently provided. Another option would be a rebate of 50 per cent of total water access and usage charges up to a maximum of $87.50.

The councils are concerned about this eventuality and the Tribunal will need clear information of the potential impacts before deciding on pricing structures. The Tribunal's

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109 The existing tariff structure for the two councils consists of a fixed component and two 'blocks' of usage charges. However, the first block of usage charge, applying to the first 200kL per annum, is zero priced. This pricing structure can be described as a 'multi-part' tariff.

110 IPART Report, *Gosford City Council, Prices of Water Supply, Sewerage and Drainage Services From 1 July 1999,* p 26 and *Wyong Shire Council, Prices of Water Supply, Sewerage and Drainage Services From 1 July 1999,* p 23.

111 The Minister for Land and Water Conservation has specified maximum reduction amounts of $87.50 for water and $87.50 for sewerage under the Water Supply Authorities (Finance) Regulation.

interest in this issue arises because the application of this CSO policy will affect the affordability of the proposal to remove the prepaid allowance.

The Tribunal seeks comments on the options for payment of the pensioner rebate and the possible impacts on affordability for pensioners.

7.2 Large-user contracts and tariffs

7.2.1 Large-customer contracts

In Hunter Water's 1996 Determination, the Tribunal accepted in principle that the water agencies should be able to negotiate individual contracts with very large customers, provided that:

- water agencies publish clear guidelines explaining the basis for negotiating individual contracts
- the prices set under negotiated agreements cover at least the costs of the services supplied.[112]

The Tribunal supported that such a framework be developed and that the principles adopted be consistent between water agencies.

The Tribunal seeks information and comments from the water agencies on the development of frameworks for the establishment of individual contracts with large customers.

7.2.2 Large-customer tariffs

For all the urban water agencies, non-residential customers generally face the same usage charge as applies to residential customers.[113] This is because access charges for all customers are based on the size of the access pipe. Normally, customers do not receive a discount on the usage charge if they are large users. They pay the same charges, regardless of the distance they are from the source of supply, the size of pipes used in delivery, or the customer's billing costs. Having a common usage charge for all customers is known as 'postage stamp pricing'.

Postage stamp pricing results in subsidies from high volume water users to low volume water users and likewise from customers close to the source of supply to those who are distant. The advantages of this pricing mechanism are that it is simple to calculate and transparent so that no user feels that it may be discriminated against.

Recently, in considering the issue of large-user tariffs, Ofwat put forward the following principles:

- unit charges should not be lower for business customers simply because they use a large amount of water

112 IPART, *Hunter Water corporation, Prices of Water Supply Sewerage and Drainage Services, Medium Term Price Path from 1 July 1996*, p 41.

113 Hunter Water currently offers a lower usage charge for consumption greater than 1000kL per annum. However, residential customers would not normally reach this level of consumption.

- charges should reflect the lower costs of delivering large quantities of water to a single point of delivery, which does not require the use of all levels of the distribution system, and
- tariffs should be structured to avoid incentives to waste water.[114]

In recognition of the threat of competition via inset appointments, Ofwat recently amended company licences to remove customers using 250ML/year or more from the tariff basket as of 1 April 2000.

> These large users will become a part of a competitive market that does not require the same degree of regulation as other groups of customers. This notwithstanding, it will still be a condition that charges to these large users should not be unduly preferential or unduly discriminatory.[115]

In recent consultations with the Tribunal Secretariat, Hunter Water indicated that it is giving consideration to a large-customer tariff in response to possible competitive pressures arising from potential third party access. These very large-user tariffs could be set to reflect, generally, any savings which occur from economies of scale in supplying these customers. They could also vary to take account of the differences in asset utilisation that occur between one large-user and the other. This variation in charge would be driven by variations in the proximity of large users to major facilities and corresponding variations in the value of the infrastructure utilised.

The Tribunal seeks comments on the development of large-user tariffs by the water agencies, in particular, whether potential third party access is creating pressure for the creation of competitive large-user tariffs, and whether lower tariffs for large customers are justified by cost differences.

If large-customer tariffs are introduced, some customers will inevitably gain from lower prices while others will be charged higher prices. Where one group of customers currently pays lower prices for a given service relative to another, the Tribunal could consider placing side constraints on price increases to ensure there is no dramatic price shock. That is, the Tribunal would limit price increases in any year to a level considered reasonable, as assessed by the Tribunal. Alternatively, the Tribunal could specify a fixed large-user tariff.

The Tribunal seeks comments on the likely impact of large-user tariffs on other water user groups and on whether side constraints are the most effective means of minimising any possible adverse outcomes.

7.3 Financial arrangements - Sydney Water Corporation and Sydney Catchment Authority

The *Sydney Water Catchment Management Act 1998* requires the Catchment Authority to enter into arrangements with Sydney Water in respect of the following matters:

- standard of quality of the water supplied
- continuity of water supply

114 Ofwat, *1999 – 2000 Report on Tariff Structure and Charges,* p 49.
115 Ofwat, *1999 - 2000 Report on Tariff Structure and Charges*, p 49.

- maintenance of adequate reserves of water by the Catchment Authority
- cost to be paid by the Sydney Water for the supply of water to it.[116]

Each of these factors will have an impact on the costs faced by the Catchment Authority in its provision of water and services to Sydney Water. For example, a decision to implement new testing procedures in relation to water quality standards may increase the costs of the Catchment Authority.

The Catchment Authority has entered into an arrangement with Sydney Water. The Catchment Authority exhibited a *Bulk Water Supply Agreement* in June 1999. Following a review the arrangements including the pricing arrangements, the Tribunal reported to the Premier on 2 August 1999.

The pricing arrangements in the bulk supply agreement are essentially cost plus. The Catchment Authority has an expected revenue of $119.5m. However, the Tribunal notes that, in determining this revenue, little provision has been made for the Catchment Authority's catchment management activities.

The Catchment Authority is a monopoly supplier of water to the Sydney Water. As noted in section 1 of this issues paper, the supply of water to Sydney Water has been declared a monopoly service, and is thus subject to price regulation by the Tribunal. Following the Premier's request, the Tribunal is conducting a review of the pricing of the Catchment Authority's supply of water to Sydney Water.

The extent to which costs are recovered from Sydney Water for the supply of water will affect the prices charged to end users and the financial viability of Sydney Water.

The Tribunal seeks comments regarding the likely effect of the prices the Catchment Authority charges Sydney Water would have on the financial viability of Sydney Water and on the prices charged by Sydney Water.

The Catchment Authority has roles of dam operations and catchment management and regulation. While the role of the Catchment Authority in relation to dam operation is relatively clear, its role in management of the catchment is less certain.[117] The extent to which this role must be played will impact on the Catchment Authority's costs. As long as this role is uncertain, the Catchment Authority is unlikely to be able to develop long term work and capital expenditure programs.

The Tribunal seeks comments on possible capital expenditure projects and the revenue requirements of the Sydney Catchment Authority.

Also it is possible that future activities of the Catchment Authority could result in additional capital expenditure by Sydney Water.

The Tribunal seeks comments on what activities of the Catchment Authority would lead to Sydney Water to increasing its capital expenditure.

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116 *Sydney Water Catchment Management Act 1998*, Division 4, Section 4 (2)(a) – (d).

117 The Catchment Authority is awaiting the completion of the inaugural catchment audit and development of the REP.

7.4 Trade waste charges

Trade waste is generally defined as waste produced at the premises of an industrial or commercial activity, and does not include domestic wastewater. Options for the treatment of trade waste, include:

- treatment and re-use
- disposal on site
- disposal into the sewerage system
- direct disposal into waterways
- cartage and disposal off-site.

In the region covered by the four metropolitan agencies, trade waste is commonly discharged into the sewerage system. The composition and concentrations of trade waste can vary enormously between different sites and across the region, depending on the nature of the waste-producing site. Trade waste discharges are particularly an issue for Sydney Water and Hunter Water as their regions contain a large number of industrial customers.

Waste which is higher than domestic grade imposes costs on the agencies; firstly, the cost of treating the waste, and secondly, the cost of discharging the waste. These costs should be met by the businesses which create the waste.

Until recently, the EPA has imposed charges on the water agencies for the discharge of pollutants into natural watercourses from their sewerage treatment plants by means of licence fees for these plants. Thus the agencies have been liable for trade waste discharges by their commercial and industrial customers into their sewerage systems. All four metropolitan agencies have imposed trade waste charges on their commercial and industrial customers. These charges are intended to recover the costs incurred in treating the waste prior to discharge and to recover the appropriate proportion of the EPA charges. (A very large proportion of all waste discharged from sewerage treatment plants is, in fact, sourced from domestic sewerage.)

In its 1998 *Review of Sydney Water Corporation's 1996 Medium Term Price Path*, the Tribunal notes that a proportion of Sydney Water's trade waste charges were, in effect, a pollution tax. For example, it was noted that revenue raised by Sydney Water trade waste charges exceeded the cost of transporting and treating trade waste. A working party formed at the time to address this issue recommended that trade waste charges should become more cost reflective.[118]

The Tribunal is of the view that charges should reflect costs. In light of load based licensing (see below), a much more cost reflective charge should be possible.

The Tribunal seeks comments on the current basis for the trade waste charges of each agency and the costs of providing trade waste services. Comments are sought on whether the charges are currently cost-reflective, or whether there is still a pollution tax element contained in the charges. Information on the impact of the new load based licensing system is also sought

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118 IPART, *Review of 1996 Medium Term Price Path Determinations for Sydney Water Corporation and Hunter Water Corporation, An Information Paper*, January 1998, p 28.

7.5 Load based licensing

The EPA's new load based licensing scheme represents a major overhaul of the NSW's environment protection licensing system which controls emissions from the State's 3,500 largest potentially polluting activities.[119] The new system, which commenced on 1 July 1999, introduces emission load limits into licences and links licence fees to the total amount of emissions (or loads) from each licensed premises. Smaller loads will attract lower fees.

The EPA issues licences relating to various activities set out in the *Protection of the Environment Operations Act 1997*. With the commencement of load based licensing, all licensees will be required to pay a licence administration fee. These fees have been set to partially recover the Government's licence administration costs.

An initial group of licensees from selected industry sectors (including sewerage treatment) will then become liable to pay pollution load fees. This charge will be phased in over four years, with no load fees payable before September 2000.

The load fee will vary depending on the amount and type of pollutants discharged and on conditions in the receiving environment. This compares with the existing system, where fees are mainly based on the scale and type of the licensed activity, or the maximum allowable volume of wastewater permitted to be discharged.

The EPA proposes that over time and with further consultation, other licensees will become subject to load fees, providing rewards and incentives for licensees to reduce polluting discharges.

The Tribunal notes that the introduction of load based licensing fees will potentially increase the operational costs of the four water agencies. It is likely that the agencies will give consideration to restructuring trade waste charges to reflect the new load based licensing environment.

The Tribunal seeks information and comment on the impact of the new load based licensing scheme on the water agencies, in particular, the expected impact on trade waste charges and any other charges relating to polluting activities.

7.6 Water charges for flats and units

For some time the Tribunal has been aware of the problems facing many flats and units where residents are unable to benefit directly from reducing their water usage. Many flats and units do not have individual meters and therefore individual water usage cannot be measured. In this case, usually the whole development is served by a single meter which records only the aggregate of all tenants.

In the price determination of 1995 for Sydney Water[120], the Tribunal noted that the cost of retrofitting individual meters to existing units and installing separate metering for new home units was clearly an uneconomic option at that time. Technology and building practices have advanced and there may now be suitable methods of metering units individually, particularly in new developments.

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119 EPA website LBL Update, January 1999.

120 IPART Report, *Sydney Water Corporation Prices of Water, Sewerage and Drainage Services from 1 July 1995*, p 18.

The Tribunal seeks comments on the cost and practicality of retrofitting meters to existing units and providing separate metering for new home units.

7.7 The charging of tenants rather than landlords

In NSW, water bills are issued to the landlord who is responsible for payment. Tenants do not have direct contractual arrangements with water agencies. This reflects the historical situation of property-based water charges in NSW. In recent years the four metropolitan agencies have been moving away from property-based charging to two part tariff structures which include a usage component. As the usage component provides pricing signals for water usage, it may be more appropriate for tenants to pay the usage component of the water bill rather than the landlord. Where the water usage charge is paid by the landlord, there may be an incentive for the landlord to install water efficient appliances such as half flush toilet cisterns, reduced flow shower roses, and new dishwashers that are water efficient. However, there is no incentive for the tenant to conserve water.

Under the *Residential Tenancies (Residential Premises) Regulation 1995*, the landlord is able to incorporate provisions in the tenancy agreement which make the tenant responsible for payment of water usage charges (if the usage is metered and if there is no minimum amount payable). However, the tenant makes payment to the landlord who is responsible in turn for payment to the water agency. The landlord remains the customer of the water agency and receives the total bill. The landlord is responsible for all water charges in respect of unmetered properties.

In Victoria, the *Residential Tenancies (Water and Utilities Charges) Act 1993 (Vic)* provides for a direct relationship between water agencies and metered tenants.. The access charge is paid by the landlord, the usage charge is paid by the tenant, and separate bills are issued to each party. When a new tenant moves into a property, the managing agent or landlord notifies the water agency of the change in tenant.

The Tribunal seeks comments on methods of billing landlords and tenants and the effect these have on water conservation. Comment is sought on whether the method used in Victoria is appropriate for New South Wales and on any legislative requirements that may be needed.

Contamination of Sydney's water supply led to disruptions of clean water supplies from 27 July 1998 to 4 August 1998. The Tribunal was requested by the Premier to make recommendations for the level of rebates to be passed onto customers. The Tribunal recommended that a rebate of $15 be paid to every customer in the affected areas. Where tenants were responsible for usage charges, they were to directly benefit from the rebate. The rebate was to be shown on the quarterly bills as a 'water usage rebate'. In other cases where tenants were not responsible for payment of water usage, the Tribunal recommended that landlords pass on the rebate.

This incident highlighted the problems that can occur when there is no direct relationship between water agencies and tenants.

7.8 Miscellaneous charges

A number of services outside the core activities of the water agencies incur costs and should be recovered from customers. For example, Sydney Water has a list of miscellaneous charges consisting of 62 different items under the following major categories:

- account and property information, reconnections
- meter installations, repairs and maintenance
- service connections, repairs and maintenance
- special service arrangements eg fire hydrant resealing, standpipe permits and trade waste
- service connection permits, approvals and investigations
- developer services
- corporate supply and information services.

The current charges for miscellaneous activities differ from one water agency to another. For example, the special meter reading fee is $20 for Sydney Water, $31 for Hunter Water, $45 for Wyong Council and $50 for Gosford Council. These charges should be based on the marginal or incremental cost of providing this service, taking into consideration potential gains in efficiency.

The Tribunal intends to undertake a comprehensive analysis of all miscellaneous charges of each service provider to determine whether or not they are fully contestable and the cost basis for those that are not contestable. A working group has been established and key stakeholders will be invited to assist this analysis.

The Tribunal seeks comments on the level and number of charges currently applied by each water agency.

A question which arises as to what is the appropriate method of regulating miscellaneous charges. Should they be part of the total revenue requirement assessed for each agency, or should they be assessed separately and subject to a different regulatory formula? In the past, individual miscellaneous charges have been subject to the CPI-X cap applied to other charges. However, it is possible that some of the costs relating to these services have been rising, so that current charges represent an under recovery of costs. Further, some of these services may now be subject to competition and therefore would no longer require regulation.

The Tribunal invites comments on the appropriate method of regulating miscellaneous charges.

7.9 Vacant land

Some water agencies bill an access or 'availability' charge on a periodic basis to properties which are not connected to the water, sewerage or stormwater services but where the services are available for connection. These types of charges are still in place in the Sydney Water, Gosford Council and Wyong Council areas. Hunter Water does not charge for vacant land. There are questions about the appropriateness of these charges.

If charges were removed, a practical implication would be the loss of revenue for the water agencies. In the case of the two Councils, a significant proportion of revenue comes from vacant land charges. Removal of these charges may require increases in charges for other customers.

One argument for their removal is that, regardless of the availability of services, charges should only be levied when services are used.

The contra argument is that agencies have to supply services for a defined area. In new areas agencies assume that all properties will eventually connect to the system and, because it is economically more efficient, infrastructure is then constructed on that basis. How should the infrastructure be paid for when it is economically inefficient to expand the system each time a new property connects?

The Tribunal seeks comments on whether the application of vacant land charges is justifiable.

There are various detailed issues concerning vacant land charges.

The water agencies now recover the capital costs of infrastructure for new land developments up-front through developer charges. However, the developer charge calculation deducts an amount for the potential revenue received from the property. Sydney Water, for example, levies a vacant land charge on these properties but deducts that revenue in the developer charges calculation.

In-fill development is the development of new land in established areas. This may occur when an existing large block of land is subdivided into two smaller blocks. A developer charge may be levied on the 'new' block. However, vacant land charges may have been paid over a number of years on the original block. The problem is to determine what, if any, compensation should be allowed for past payments.

Some properties may not be connected to water and sewerage systems, but may be occupied. One argument for the imposition of a vacant or unconnected charge in this situation is that, if there are health or safety concerns, charging may encourage connection. This may benefit the community in general. However, many residents in this situation have systems in place that provide the necessary environmental safeguards.

The Tribunal seeks comments on the environmental, water use and financial implications of removing the availability charge to vacant and unconnected properties.

7.10 Unmetered premises

In the Sydney Water area many older residential properties have no meter. These properties[121] are charged an access charge and a usage charge based on the usage of an 'average' customer. The concern is that actual usage may be much less than the 'average' and therefore is subject to overcharging. Commercial properties, numbering about 16,000, and industrial properties, numbering about 4,800, are levied only the access charge. Most of

[121] These properties number about 14,500 homes and 4,700 units or blocks of units (or approximately 1.5% of homes and 1% of units in Sydney Water's customer base).

these properties are small businesses, such as shops, with little water usage because generally there are no bathing facilities or gardens on site.

The Tribunal notes that unmetered customers of some other interstate agencies are charged only the access component of charges. This provides the water agency with an incentive to install meters in those properties affected. However, some unmetered properties may be difficult (and therefore costly) to meter – such as properties which do not have a water pipe located near a street.

The Tribunal seeks comments on different options for charging unmetered properties. Comments are also sought on the cost of installing meters for properties currently unmetered and how these costs should be distributed between the water agency and the property owner.

7.11 Exempt properties

Some properties are exempt from service charges under Schedule 6 of the *Water Supply Authorities Act 1987* (the Act governing the councils) and under the *Sydney Water Act 1994* (the Act governing Sydney Water). Exempted properties often include organisations such as churches, schools and charities. Hunter Water does not have legislative restrictions on charging these properties, but an internal policy exempts certain of the categories. Sydney Water charges some of the properties usage charges as allowed under its Act, and receives a rebate from Government for loss of revenue arising from not applying service charges.

Although exempt from service charges, s30(2) of the Water Supply Authorities Act permits supply authorities to levy a fee. As noted in the May 1999 determination,[122] Wyong Shire Council levies fees on these exempt properties so that they pay an amount equivalent to charges levied on ordinary properties. Gosford City Council also charges exempt properties at the same rates as other properties.

The Tribunal seeks comments on the fees levied on exempt properties by Wyong and Gosford Councils..

7.12 Hunter Water – sewerage usage charge

The 1996 price determination[123] for Hunter Water Corporation set maximum sewerage usage and service charges. These sewerage service and usage charges are multiplied by a discharge factor which is determined on the basis of the percentage of water purchased from Hunter Water which is assessed to be discharged into the sewer. For residential customers, a standard discharge factor of 50 per cent is applied to both charges.

Concerns have been raised about this approach[124] in relation to the possibility that the amount discharged to the sewer may vary depending on the nature of the residential property. For instance, it is possible that a rural residential property will discharge a smaller proportion of its water to the sewer than does a residential flat. A rural residential property

122 IPART Report, *Wyong Shire Council, Prices of Water Supply, Sewerage and Drainage Services From 1 July 1999,* p 24.

123 See IPART Report, *Hunter Water Corporation Prices of Water Supply, Sewerage and Drainage Services,* June 1996, p 3 of Determination.

124 R J McKee (resident of Branxton, NSW), letter to the Tribunal dated 24 May 1999. C Springbett, (resident of Cessnock, NSW), letter to the Tribunal dated 7 July 1999.

is likely to use water on gardens, which does not go back to the sewer. Alternatively, all water usage in a flat will return to the sewer.

The use of a standard 50 per cent discharge factor provides a simple method of charging residential customers and avoids the additional cost of Hunter Water having to individually assess each residential property. However, alternative charging methods could be considered, such as considering the size or nature-of-use of the property. The other three agencies do not impose usage charges for sewerage.

The Tribunal seeks comments on the appropriateness of imposing a usage charge for sewerage, in particular whether the application of a standard 50 per cent discharge factor for all residential customers is appropriate and whether other mechanisms might provide a fairer basis for charging for discharges from residential properties.

7.13 Hunter Water – environmental improvement charge

Hunter Water's environment improvement charge relates to the Hunter Sewerage Project, which was undertaken to provide sewerage services in the Hunter Fringe Area. A number of housing developments in the Hunter fringe were carried out without sewerage services being provided. Residents installed septic tanks or pump-out facilities. These did not always operate satisfactorily. Some developments are located near sensitive waterways, such as Port Stephens and Lake Macquarie, which became polluted through seepage from septic systems.

The Hunter Sewerage Project was initiated by the NSW Government, relevant local government councils and Hunter Water in the late 1980s to address environmental problems arising from sewerage backlog. It was decided that the cost of the project would be shared between owners of vacant land in the relevant area, the Hunter community generally, and the NSW Government. Hunter Water was to fund 50 per cent of the capital costs, with the NSW Government funding the remaining capital costs as a CSO (community service obligation).

The environmental improvement charge was established to eventually recover 25 per cent of project costs. Payable by all sewerage customers except pensioners, the charge will cease in 2008/09. The remaining costs of the project were to be recovered through a sewer service access charge. This charge was reduced from $3059 in 1995/96 to $2780 in 1996/97 and has remained at this level in nominal terms.

In its 1996 Determination, the Tribunal reduced the environmental improvement charge from $78 to $40 to reflect lower costs and higher revenues than were originally budgeted for the project. The charge remains at $40 for 1999/2000. The Tribunal has indicated it will review the level of the environmental improvement charge in the 2000 medium term review.

The Tribunal seeks information from Hunter Water Corporation as to an appropriate level for the environmental improvement charge for the five years from 1 July 2000. This proposal should include a full analysis of historic and projected costs and revenues relating to the Hunter Sewerage Project. The Tribunal also seeks comments from other stakeholders on the level of this charge.

8 DEVELOPER CHARGES

Developer charges are up front charges paid by developers to water agencies to recover the infrastructure costs incurred in servicing new developments.

The development of a property also involves the installation of water related assets within the property to service each house or unit. Upon completion of the development, ownership of these assets is transferred to the water agency. These assets are then known as 'gifted assets'.

Developer charges, or 'cash contributions' (as opposed to 'gifted assets'), provide a source of funding to the water agency for the infrastructure required to connect the new development. An important function of developer charges is to provide a price signal to the developer regarding the costs of urban development. Developer charges for new developments should signal the true relative costs of providing the required infrastructure and therefore encourage less costly forms of development and locations for development. Unlike periodic charges, developer charges are paid up front to recover costs immediately.

In 1995 and 1996, the Tribunal made determinations for the water agencies which set out a common methodology for calculating developer charges[125]. The methodology is based on a net present value (NPV) approach which evaluates the costs and revenues of infrastructure projects. Utilities are required to develop development servicing plans (DSPs) which include pricing calculations as well as information regarding the extent of the geographical area covered by the DSP, estimates of future capital and operating costs, demographic assumptions, and land use planning information. Generally, DSPs should contain sufficient information to allow developers to scrutinise the agency's investment decisions and encourage agencies to use least cost methods. Although the methodology is common to the four agencies, the Tribunal set different parameters for each to reflect individual circumstances. This took the form of differing discount rates, transition periods, asset valuation variables, and discounts on final charges. The process provides opportunities to have charges reviewed.

The Tribunal also established the Water Forum to make recommendations and provide advice to the Tribunal on developer charges issues. The Water Forum consists of interested parties including developers, water agencies, environmental groups, customer groups, government departments and the Tribunal's secretariat.

Over the period of implementation since the determinations, the Water Forum has made the Tribunal aware of emerging issues. However, only recently have enough development servicing plans been released to enable a close inspection of the application of the methodology and the DSP process in general. The Tribunal decided in late 1998 that an independent appraisal of the implementation would be useful. A consultancy team was engaged to review a broad range of developer charges issues and the proposed developer charges methodology for local councils being developed by the Department of Land and Water Conservation. The results of that consultation will be published shortly.

125 See IPART Report, *Sydney Water Corporation Prices of Developer Charges for Water, Sewerage and Drainage Services,* December 1995.

The NPV approach has been accepted by agencies and developers. However, where there has been a substantial increase in charges, developers have sought to have the charges reduced. Developers have also expressed concern that the methodology has not been implemented consistently across agencies. Broad in principle, the methodology leaves room for interpretation. At the time of the determinations, the Tribunal believed any problems should be resolved by negotiation, mediation or arbitration. The Tribunal has not been advised of any mediation or arbitration.

The agencies have devoted considerable resources to the DSP process. The resulting DSPs vary in complexity and transparency. The agencies accept that there may be variations in implementation of the NPV process, but believe that there needs to be some flexibility to allow for agency specific differences. However, the agencies have concerns over the differing variables set by the Tribunal in determinations. They believe that the credibility of the methodology would be enhanced by a consistent set of variables across all agencies.

The Tribunal seeks comments regarding the current method of allocating agency specific variables for calculations, the ramifications of adopting a common set of variables, and what principles should underpin the development of common variables.

The Tribunal is committed to an NPV approach to developer charges. However, based on experience from its implementation, the Tribunal accepts that there may be a need for changes to the determination.

The Tribunal seeks comments on how specific aspects of the developer charges methodology could be varied to provide a basis for a more consistent implementation by agencies.

The Tribunal had certain objectives when formulating the determinations for developer charges:

- charges should recover the full efficient costs of the infrastructure provided
- charges should provide pricing signals to encourage efficient resource allocation
- possible impact on housing affordability should be considered when applying charges
- charges should ensure the financial viability of extensions.

The Tribunal seeks comment on whether the methodology has achieved the stated objectives, and whether, after three years of implementation, the original objectives are still valid and still achievable.

The issue of transparency is highlighted in the guidelines to the developer charges determinations. The determinations require that water authorities prepare DSPs providing information such as 'relevant land use planning', 'the calculated developer charge' and 'the extent of the catchment/supply zone'. The Tribunal has received complaints that many DSPs are difficult to follow and interpret.

The Tribunal seeks comments on the transparency of DSPs and practical steps that may be taken to improve their transparency.

The determinations do not prescribe a timetable for the development and publication of DSPs or the methods to be adopted to allow public consultation before their adoption. There has been a great deal of variation in the time taken to publish and adopt DSPs since

the determinations. Once a DSP has been developed, common practice is to display the draft DSP for 28 days to allow scrutiny and comment. Changes of a factual nature can still be made after that period. The two councils adopted their DSPs soon after the determinations were made. However, the number of DSPs is small. Sydney Water took some time to adopt its first DSP, but has released a great number recently. Hunter Water has yet to publish a DSP under the Tribunal's methodology and currently applies charges based on its former regime.

Initially developers complained that the time taken to develop and publish DSPs was excessive. However, now that DSPs are being produced in large numbers, developers complain that there is not enough time to fully scrutinise the DSPs in the time allowed.

Following feedback from a number of developers it appears to the Tribunal that the DSP process is not well known to developers outside the Developer Charges Water Forum. The Tribunal published a pamphlet describing the DSP process in 1998 to assist in that purpose. Copies of the pamphlet are available from the water agencies and the Tribunal.

The Tribunal seeks comments on the methods currently used by agencies to display and then adopt development servicing plans. What methods can be adopted that would achieve a better balance between the need to finalise development servicing plans quickly and the need to allow sufficient time for scrutiny before adoption. Comments are also sought on what can be done to better inform the public about the development servicing plan process.

One of the requirements of the determinations is:

> In assessing the costs of assets to be included in the developer charge, water authorities shall demonstrate that there is a nexus between the development and the assets which are to serve that development. These assets should be clearly identified in the Development Servicing Plans …

The Tribunal has received comments that there is significant difficulty in determining this nexus in some DSPs. If a nexus is not established, the costs of assets may be recovered more than once or inappropriately recovered.

If the establishment of a nexus in current development servicing plans is perceived as a problem, the Tribunal seeks comments on the type and form of information that could be displayed in DSPs to better establish a nexus between the assets and the development.

9 SUMMARY OF ISSUES RAISED

The Tribunal seeks comments and information on the following issues.

REGULATORY ENVIRONMENT (S2)

Third Party Access (s2.2.4)

Potential for third party access in the water industry and its likely impacts.

Whether consideration should be given to the development of large-user tariffs in response to potential competition.

Competitive Neutrality (s2.2.5)

The impact of competitive neutrality policy on Gosford City Council's and Wyong Shire Council's costs and charges.

The Goods and Services Tax (s2.2.6)

The likely impact of the GST on the four metropolitan agencies' input costs and charging frameworks, the GST status of the services provided by the agencies, and whether any procedures have been put in place to comply with the GST.

FORM OF REGULATION (s3)

The most appropriate form of regulation for water agencies, and the criteria which should be used to assess the form of regulation employed. (s3.2.2)

Whether a price cap or revenue cap model should be employed, and if so how the price cap or revenue cap should be structured. (s3.2.3)

The use of a tariff basket to establish maximum prices for the four metropolitan agencies, and which items should be included in such a tariff basket. (s3.2.4)

The need for controls over individual prices in the tariff basket (for example, usage price may be important for demand management), and the need for side constraints on price changes. (s3.2.4)

The advantages and disadvantages of implementing regional pricing within the jurisdictions of each agency. (s3.3.2)

The advantages and disadvantages of implementing seasonal pricing. (s3.3.3)

Sharing the Benefits of Efficiency Improvements (s3.4)

Efficiency incentives and appropriate methodologies for sharing the benefits of efficiency, including the full glide path and partial glide path approaches. (3.4.3)

Incentives to Improve Service Performance (s3.5)

Whether agencies should be provided with additional incentives for service performance along the lines of those implemented by Ofwat, and any problems which could arise from implementing service performance incentives in the water industry.

Ring Fencing (s3.6)

The need to increase regulation of ring fencing in the water industry.

ISSUES TO BE CONSIDERED UNDER SECTION 15 OF THE IPART ACT (S4, S5 AND S6)

Costs and Efficiency (s4)

The agencies' recent operating expenditure trends. (s4.1.1)

The appropriateness of the agencies' forecast operating expenditure levels, supported by evidence. (s4.1.1)

Each agency's capital works program and the reasoning underlying it with supporting information. (s4.1.2)

How each agency has resolved the trade-offs between capital expenditure, operating expenditure, and service levels. (s4.1.3)

The nature of the agencies' long run marginal cost of supply, together with an indication of the weight given to LRMC in structuring each agency's pricing proposals. (s4.1.4)

Financial Viability (s5)

Asset Valuation (s5.1.1)

The appropriate valuation to be adopted for the agencies' assets for regulatory purposes.

How to roll forward the regulatory asset base once it has been determined.

Return on Capital (s5.1.2)

Use of CAPM as a guide for the cost of equity, whether there are better methods that give more reliable results, and what is a reasonable rate of return for the industry more generally.

The appropriate parameters to be applied in using CAPM to determine the weighted average cost of capital for each of the agencies.

Return of Capital (s5.1.4)

How prices should be calculated to provide for the return of capital costs.

Capital Structure (s5.1.7)

An appropriate capital structure for the water agencies, in terms of general principles, or on an individual agency basis.

Consumer Protection, Standards and Environmental Issues (s6)

Consumer Protection (s6.1)

The nature and magnitude of possible price constraints which could be imposed to alleviate the impact of the Tribunal's price determination on customers, with each agency justifying constraints to be adopted in relation to its pricing proposals, and providing detailed customer impact analyses showing the full effect of any changes in pricing and details on how the agencies intend to manage these changes.

Standards (s6.2)

Compliance with Standards

The water agencies' compliance with relevant standards and guidelines, so that the Tribunal can gauge the appropriateness of costs incurred for the purpose of setting prices.

Service Levels

The agencies' level of service provision, whether this meets customer expectations, bearing in mind the prices charged for the services, and whether there is agreement between the provider and customers regarding reasonable performance.

Environmental Issues (s6.3)

Ecologically Sustainable Development (s6.3.1)

How the concept of ecologically sustainable development can be practically incorporated into the pricing policies and demand management policies of the water agencies.

Demand Management (s6.3.2)

The water agencies' experience of applying the water demand management framework and recommendations developed by the Water Demand Management Forum.

Ways of developing economic incentives for water reuse in NSW.

Whether pricing is an effective way of influencing consumer behaviour in relation to water usage, what is the appropriate level of the usage charge, and what are alternative demand management options for the water agencies.

Environmental Standards (s6.3.3)

Customers' willingness to pay for capital infrastructure, as evidenced through willingness-to-pay studies.

Stormwater (s6.3.4)

How stormwater management strategies can be incorporated into the price of stormwater services.

Appropriate pricing arrangements for stormwater services provided by the water agencies.

ISSUES ARISING FROM EARLIER DETERMINATIONS (S7)

Water Pricing Structure – Gosford and Wyong Councils (s7.1)

The likely impacts of eliminating the prepaid water allowance and implementing a pure two part tariff pricing structure for Gosford City Council and Wyong Shire Council.

Options for payment of the pensioner rebate and the possible impacts on affordability for pensioners.

Large-Customer Contracts and Tariffs (s7.2)

The development by the four metropolitan agencies of frameworks for the establishment of individual contracts with large-customers.

The development of large-user tariffs by the agencies, whether potential access is creating pressures for the creation of competitive large-user tariffs, and whether lower tariffs for large-customers are justified by cost differences (refer s2.2.6).

The impact of large-user tariffs on other water user groups, and whether side constraints are the most effective means of minimising any possible adverse outcomes.

Financial Arrangements – Sydney Water Corporation and Sydney Catchment Authority (s7.3)

The likely effect of the prices the Catchment Authority charges Sydney Water on the financial viability of Sydney Water and on the prices charged by Sydney Water.

Possible capital expenditure projects and the revenue requirements of the Sydney Catchment Authority.

Activities of the Catchment Authority which would lead to Sydney Water increasing its capital expenditure.

Trade Waste Charges (s7.4)

The current basis for each agency's trade waste charges, including the costs of providing trade waste services, whether the charges are currently cost reflective, or whether a pollution tax element is included.

Load Based Licensing (s7.5)

The impact of the new load based licensing scheme on the water agencies, and expected impact on trade waste charges and any other charges relating to polluting activities.

Water Charges for Flats and Units (s7.6)

The cost and practicality of retrofitting meters to existing units and providing separate metering for new home units.

Charging Tenants versus Charging Landlords (s7.7)

Methods of billing landlords and tenants and the effect these have on water conservation, whether the method used in Victoria is appropriate for New South Wales, and any legislative requirements that may be needed.

Miscellaneous Charges (s7.8)

Charges and levels of charges currently applied by each water agency and appropriate ways of regulating miscellaneous charges.

Vacant Land (s7.9)

Whether the application of vacant land charges is justifiable.

The environmental, water use and financial implications of removing the availability charge on vacant and unconnected properties.

Unmetered Premises (s7.10)

Options for levying charges on unmetered properties, the cost of installing meters for properties currently unmetered, and how the costs should be distributed between the water agency and the property owner.

Exempt Properties (s7.11)

The fees levied on 'exempt properties' by Wyong and Gosford Councils.

Hunter Water – Sewerage Usage Charge (s7.12)

Whether it is appropriate to impose a usage charge for sewerage, whether it is appropriate to apply a standard 50 per cent discharge factor for all residential customers, and whether other charging might provide a fairer way of pricing sewerage discharges from residential properties.

Hunter Water - Environmental improvement charge (s7.13)

An appropriate level for the environmental improvement charge to be imposed by Hunter Water Corporation for the five years from 1 July 2000, including a full analysis of historic and projected costs and revenues relating to the Hunter Sewerage Project.

DEVELOPER CHARGES (S8)

The current method of allocating agency specific variables in calculating developer charges.

The impact of adopting a common set of variables, and principles which should underpin the development of common variables.

Any ways in which specific aspects of the developer charges methodology could be varied to enable the agencies to be consistent in their implementation.

Whether the developer charges methodology has achieved its stated objectives and whether the original objectives are still valid and still achievable.

Practical steps that could be taken to improve the transparency of development servicing plans (DSPs).

Methods currently used to display and adopt DSPs, how a balance could be achieved between finalising DSPs quickly so that commercial decisions can be taken while allowing time for those affected to scrutinise the contents before adoption, and what can be done to better inform the public of the DSP process.

The type and form of information that could be displayed in DSPs to better establish a nexus between the development and the assets which are to serve the development.

APPENDIX A SUMMARY OF PREVIOUS DETERMINATIONS

As noted above, the Tribunal set medium term price paths for each of the four metropolitan urban water agencies in June 1996. Principal aspects of the determinations released in June 1996 are listed below.

Sydney Water Corporation

The Tribunal set a four year price path to apply from 1996/97 to 1999/2000. A mid term review was held early in 1998. The price path determined:

- overall periodic water, sewerage and drainage charges were to be reduced by 2.3 per cent in real terms in 1996/97[126] and by an average of 0.8 per cent a year in the subsequent three years.[127]
- existing non-residential property value based charges were to be reduced by $20m a year in each of the four years, 1996/97 to 1999/2000. The remaining non-residential property value based charges ($61m in 1999/2000) are to be considered in the next major review.
- water charges are to increase to reflect the filtration costs of higher drinking water quality:
  - water usage charges (residential and non-residential) for retail filtered water were to increase by 6 cents to 76 cents per kilolitre in 1996/97 and to increase progressively to 90 cents in 1999/2000
  - water service charge are to remain at the current level ($80 a year) in nominal terms until 1999/2000.
- sewerage charges
  - the annual sewerage service charge was to increase by $8.60 to $271.60 for residential and non-residential properties (with 20mm water meters) in 1996/97 and then to increase progressively to $290.40 in 1999/2000
  - the non-residential sewerage usage charge was to increase by 4 cents to 87 cents per kilolitre in 1996/97 and to increase progressively to 96 cents in 1999/2000.
- stormwater drainage area charges were to remain at existing levels in nominal terms over the four years. Drainage property value based revenue was also to remain at the current level in nominal terms.
- A new charge was introduced for 'sewer mining' for Sydney Water Corporation. The initial price was set at the higher of 'zero' or 'cost'[128] until the reuse market increases to 20 per cent of the total water use market.

126 This implies a nominal increase of 3.0% on the basis of a 5.3% average increase in the Consumer Price Index (Sydney) for the twelve months to March 1996 compared with the twelve months to March 1995.

127 Based on estimates of inflation at the time.

128 There may be connection/contractual costs imposed on SWC on any sewer mining activity undertaken by another party.

Table A1 Overview of Sydney Water's water, sewerage and drainage charges
($ of year)

	1996/97	1997/98	1998/99	1999/2000
Water				
- service charge per annum	$80	$80	$80	$80
- usage charge[1]	76 c/kL	80 c/kL	85 c/kL	90 c/kL
Sewerage				
- service charge per annum	$271.60	$280.40	$285.60	$290.40
- non residential usage[3]	87 c/kL	90 c/kL	93 c/kL	96 c/kL
Stormwater drainage area				
- charge per annum	$16	$16	$16	$16
Non residential property value based charges	$121m	$101m	$81m	$61m

Note:
1. The usage charge applies to meter reading periods commencing after 1 July each year.
2. The sewerage service charge ($65.75 per quarter) applies from 1 October 1995.
3 For non-residential discharges above 1.37 kL/day (500 kL a year).

In 1998, the Tribunal conducted a mid term review of Sydney Water's price path. During this review, the Tribunal noted that inflation had fallen well short of the forecasts on which the medium term price path had been based. As a result, the Tribunal determined that in 1998/99 and 1999/2000, property based annual sewerage charges for non-residential customers will be reduced by an additional amount totalling $40 million over the two years. At the same time, the Tribunal determined:

- property based annual drainage (stormwater) charges will remain as in Determination No 6, 1996
- in the absence of specific proposals from Sydney Water there will be no change in charges to all Sydney Water customers, in order to recover some of the costs of backlog sewerage
- for non-residential properties within the Rouse Hill Scheme, the recycled water (access) component of the Quarterly Rouse Hill charge is to be based on meter size rather than on land area
- arrangements for sewerage charges for Penrith residents will remain as set out in Determination No 6, 1996
- the Tribunal will continue to monitor the implementation of the Tribunal's methodology for calculating developer charges. Major changes will be deferred until the next major review.

In the period from July to September 1998, Sydney Water's water supplies were found to contain Cryptosporidium and Giardia. This led to a 'boil water alert' being raised. As part of the Government's management of the incident, the Premier sought the Tribunal's advice on the level of rebates that should be set as compensation for the disruption to clean water supplies. The Tribunal recommended that Sydney Water make an ex gratia rebate on the usage component of the next quarter's water bill of $15. The Tribunal also recommended that:

> … the increase in the usage charge from 80 cents per kilolitre to 85 cents per kilolitre due to apply in the meter reading periods commencing on or after 1 July 1998 be deferred.[129]

The Government implemented these recommendations. The freeze on the usage price remained in place until April 1999.

Hunter Water Corporation

In its determination of June 1996,[130] the Tribunal set a four year price path to apply from 1996/97 to 1999/2000. A mid term review took place in early 1998. The price path determined:

- overall periodic water, sewerage and drainage charges (excluding charges for the Hunter Sewerage Project) were to decrease by 2 per cent[131] a year in real terms from 1996/97 to 1999/2000.[132]
- charges relating to the Hunter Sewerage Project:
  - the Environmental Improvement Charge was to decrease from $78 a year to $40 in 1996/97 and to be held constant in nominal terms (at $40) until 1999/2000.
  - the Hunter Sewer Service Access Charge was to be reduced from the current level of $3,059 to $2,780. This charge was to remain at the reduced level in nominal terms until 1999/2000.
  - a refund of $441 plus accrued interest was to be provided to owners who had paid sewer service access charges in past years.
- water charges
  - the water usage charge (for water consumption below 1000 kL) was to increase by 5.3 cents to 85.7 cents per kilolitre in 1996/97. The usage charge was then to increase to 88.8 cents (in 1996/97 dollar terms) by 1999/2000.
  - the water service charge was to decrease from $73.50 a year to $63.60 for residential and non-residential properties in 1996/97. The annual charge was then to decrease progressively to $23.70 (in 1996/97 dollar terms) by 1999/2000.
- sewerage charges
  - residential sewerage usage charges were to decrease by 8.8 cents to 74.6 cents per kilolitre in 1996/97 and then to decrease progressively to 45.8 cents (in 1996/97 dollars terms) in 1999/2000. (This usage charge is multiplied by a discharge factor of 50 per cent and is then added to service charges to make up the residential sewerage bill.)

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129 IPART, *Sydney Water Corporation – special rebate*, p 2.

130 IPART, *Hunter Water Corporation, Prices of Water Supply, Sewerage and Drainage Services, Medium Term Price Path Determination from 1 July 1996*, Determination No. 5, 1996.

131 This implies a nominal increase of 3.3% on the basis of a 5.3% average increase in the Consumer Price Index (Sydney) for the twelve months to March 1996 compared with the twelve months to March 1995.

132 The relevant CPIs for 1997/98 and 1998/99 were 2.34% and –0.06% respectively.

- the non-residential sewerage usage charge was to increase by 2 cents to 39 cents per kilolitre in 1996/97 and was to remain at this level in real terms to 1999/2000.
- the sewerage service charge for residential customers was to increase by $16.20 a year to $172.50 (assuming a discharge factor of 50 per cent) for residential and non-residential properties in 1996/97. The annual charge was then to increase progressively to $195.00 (assuming a discharge factor of 50 per cent) in 1999/2000.

- stormwater drainage service charges were to be adjusted by CPI-2% a year over the price control period.
- the net present value (NPV) method currently used by Hunter Water to calculate developer charges was to be modified to be consistent with the methodology determined by IPART. This generally implied an increase of approximately 50 per cent over current charges. The new charges were to be phased in progressively over the coming four years.
- new trade waste charges approved by IPART in 1994/95 were to continue to be phased in during 1996/97. The charges were then to be adjusted annually by CPI-2% during the remainder of the price control period.
- charges for miscellaneous customer services were to be adjusted annually by CPI-2% over the four years from 1996/97 to 1999/2000.
- Hunter Water was permitted to enter into contractual arrangements with its large customers, subject to a framework developed by IPART in consultation with the water agencies.

Table A2 Overview of Hunter Water's water, sewerage and drainage charges

	1995/96 Current	1996/97	1997/98 in 1996/97 dollars[1]	1998/99	1999/2000
Water	$73.5	$63.6	$49.5	$35.7	$23.7
- service charge per annum					
- usage charge[2])					
< 1000 kL	80.4 c/kL	85.7 c/kL	86.8 c/kL	88.1 c/kL	88.8 c/kL
> 1000 kL	74.2 c/kL	78.9 c/kL	79.9 c/kL	81.1 c/kL	81.7 c/kL
Sewerage[3]					
- service charge per annum	$312.60	$345.0	$362.1	$377.4	$390.0
- residential usage	83.4 c/kL	74.6 c/kL	63.5 c/kL	53.9 c/kL	45.8 c/kL
- non-residential usage	37.0 c/kL	39.0 c/kL	39.0 c/kL	39.0 c/kL	39.0 c/kL
Stormwater drainage					
- residential service charge per annum	$24.1	$24.9	$24.4	$23.9	$23.4

Note:

1. Charges from 1997/98 to 1999/2000 to be indexed by the retrospective CPI for each year ending in March compared with the previous year.
2. Meters were be read progressively throughout the billing period. As the new usage charges were to apply from 1 July of each year, which might be part way through a billing period, average daily consumption would be assumed to be constant throughout the billing period.
3. Subject to a discharge factor of 50 per cent for residential customers.

At the mid term review held in early 1998, the Tribunal:

- determined that the current medium term price path for water, wastewater and drainage charges should continue
- agreed, in principle, to Hunter Water's proposed changes to miscellaneous charges, trade waste charges and urban development fees. However, these charges were required to fit within the context of the overall pricing framework and revenue requirements of Hunter Water. On this basis, the Tribunal would defer implementation of these charges until the next major review.

Gosford City Council

In June 1996, the Tribunal made a determination that set prices for Gosford Council for the period from 1 July 1996 to 30 June 1999. Principal elements of the 1996 Determination in relation to maximum charges for Gosford's water, sewerage and drainage services are summarised below:

- The maximum 1996/97 annual water base charges were defined explicitly according to size of service for water usage, commencing at $168 for the standard metered residential service (20mm). This base charge included a 'prepaid' water usage allowance of 200 kilolitres a year for each individual assessment. The maximum charge for water usage beyond 200 kL was set at 65 c/kL.
- the annual residential sewerage charges for 1996/97 were set by a formula which allowed at most a $50 increase over the applicable charge as at 30 June 1996, and a maximum charge of $378.
- non-residential sewerage charges were defined to be a two part charge with the annual base charges based on size of service for water usage, starting at $290 per annum for a 20mm service and the usage component set at 68 c/kL, to be multiplied by a discharge factor assessed by Gosford Council. A formula allowed a 'phase in' of these charges in 1996/97. The maximum charge was defined to be the charge applicable at 30 June 1996 plus 25 per cent of the increase in charges indicated by the new formula.
- the determination referred to these charges as 'core revenue charges' which Gosford Council could adjust in 1997/98 and 1998/99, provided that average core revenue per property decreased in real terms by 5 per cent for periodic water charges and 1.5 per cent for periodic sewerage charges.
- drainage service charges were not to exceed charges as at 30 June 1996 ($40 per assessment and $20 per pensioner assessment).
- the maximum charge for trade waste of 'excess quantity' and acceptable quality was set at 20c/kL. Where trade waste did not comply with the quality required by Gosford Council, the maximum charge was set at $1.30/kL with a possible additional non-compliance penalty of $1.30/kL.
- the maximum charge for recoverable works was to be in accordance with charge out rates published annually by Gosford Council.
- other miscellaneous water and sewerage fees and charges were defined specifically for 1996/97. The determination stated that these fees and charges "may be adjusted by a factor of CPI-1.5% in 1997/98 and 1998/99". Gosford Council adjusted miscellaneous charges by the CPI-1.5% formula in 1997/98, but did not do so in 1998/99, maintaining charges at the 1997/98 nominal level.

- net present value methodology was to be adopted to calculate developer charges.

In order to align the medium term price path reviews of the four agencies, the Tribunal made a one year determination in May 1999.[133] The main features of this 1999/2000 determination are:

- Gosford City Council's water base and usage charges and residential sewerage charge in 1999/2000 will be maintained at the nominal levels charged in 1998/99, representing a real reduction in these charges equal to the CPI increase of 1.6 per cent.
- a revenue neutral adjustment will be made to the non-residential sewerage charges, increasing the usage charge to 70 cents per kilolitre (from 68 cents per kilolitre) and reducing the base charge in each service category accordingly.
- the drainage levy will remain at its 1998/99 level of $40 per assessment ($20 for pensioners).
- all miscellaneous charges are to be adjusted to comply with the CPI-1.5% formula proposed in the 1996 determination, causing a moderate downward adjustment for most miscellaneous charges from the 1998/99 level.
- the level of charges proposed by Gosford Council for a small number of additional miscellaneous charges in 1999/2000 has been accepted by the Tribunal.

Wyong City Council

In June 1996, the Tribunal made a determination which set prices for Wyong Shire Council for the period 1 July 1996 to 30 June 1999. Principal features of that determination were:

- overall periodic water and sewerage charges were to be reduced by 5 per cent in nominal terms from 1 July 1996 and 1.5 per cent a year in real terms in the subsequent two years.
- net present value methodology was to be adopted for calculating developer charges.
- continued phased introduction of a cost reflective two part tariff for non-residential sewerage charges.
- continued phased adoption of cost reflective charges for the pump out of effluent from septic tanks and chemical closet removal services.
- continued increases in sewerage charges for non-strata titled units to bring them to the same level as for strata units, with the maximum increase in charges for a single unit limited to $50 per year.
- continued phased increases in sewerage charges to non-strata titled retirement villages to 20 per cent of the charge for a residential assessment.

As a result of the medium term price path:

- the maximum sewerage charge for single residential properties and for non-strata titled units in 1998/99 is $347.

133 IPART, *Gosford City Council Prices of Water Supply, Sewerage and Drainage Services from 1 July 1999,* Determination No. 1, 1999.

- the sewerage service charge for a single residential property in 1998/99 is $347. The charge for non-strata titled retirement villages is $70 for each unit, or 20 per cent of the single residential charge.

In May 1999, the Tribunal made a determination for 1999/2000 to align the price path reviews of all four metropolitan water agencies. The main features of this 1999/2000 determination are:

- periodic water and sewerage charges and miscellaneous charges are to remain constant in nominal terms
- Wyong Shire Council's proposals for the addition of certain new or previously unregulated miscellaneous charges are included in the current listing
- Wyong City Council's proposal for phased removal of the 85 per cent cap on developer charges is rejected.

APPENDIX B DRAFT TERMS OF REFERENCE INDEPENDENT PRICING AND REGULATORY TRIBUNAL DETERMINATION OF PRICING FOR SUPPLY OF BULK WATER

1. The Independent Pricing and Regulatory Tribunal of New South Wales (**IPART**) is requested, pursuant to section 12(1)(a) of the *Independent Pricing and Regulatory Tribunal Act 1992*, to conduct an investigation and make a report on the determination of pricing for the following services supplied by the Sydney Catchment Authority (**Authority**) to the Sydney Water Corporation (**Corporation**):
   a) water supply services; and
   b) ancillary and miscellaneous services for which no alternative supply exists and which relate to the supply of those water supply services,

For the five year period commencing on 1 July 2000.

2. IPART must, when conducting its investigation and making its report, consider:
   a) the role, objectives and functions of the Authority, as provided for in sections 13, 14 and 15 of the *Sydney Water Catchment Management Act 1998;*
   b) the functions and objectives of the Corporation, as provided for in sections 5 and 21 of the *Sydney Water Act 1994;*
   c) the findings, conclusions and recommendations of the Sydney Water Inquiry;
   d) the regulatory environment in which the Authority and the Corporation operate and changes affecting the regulatory environment;
   e) the financial management framework within which the Corporation and the Authority operate;
   f) the terms of the operating licence which are to apply to the Corporation and the Authority from 1 January 2000; and
   g) any other matters that IPART considers relevant.

3. The report is required to be submitted by no later than 31 May 2000.

APPENDIX C SECTION 15 INDEPENDENT PRICING AND REGULATORY TRIBUNAL ACT 1992

15 Matters to be considered by Tribunal under this Act

(1) In making determinations and recommendations under this Act, the Tribunal is to have regard to the following matters (in addition to any other matters the Tribunal considers relevant):

a) the cost of providing the services concerned

b) the protection of consumers from abuses of monopoly power in terms of prices. pricing policies and standard of services

c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales

d) the effect on general price inflation over the medium term

e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers

f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment

g) 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

h) 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

i) the need to promote competition in the supply of the services concerned

j) considerations of demand management (including levels of demand) and least cost planning

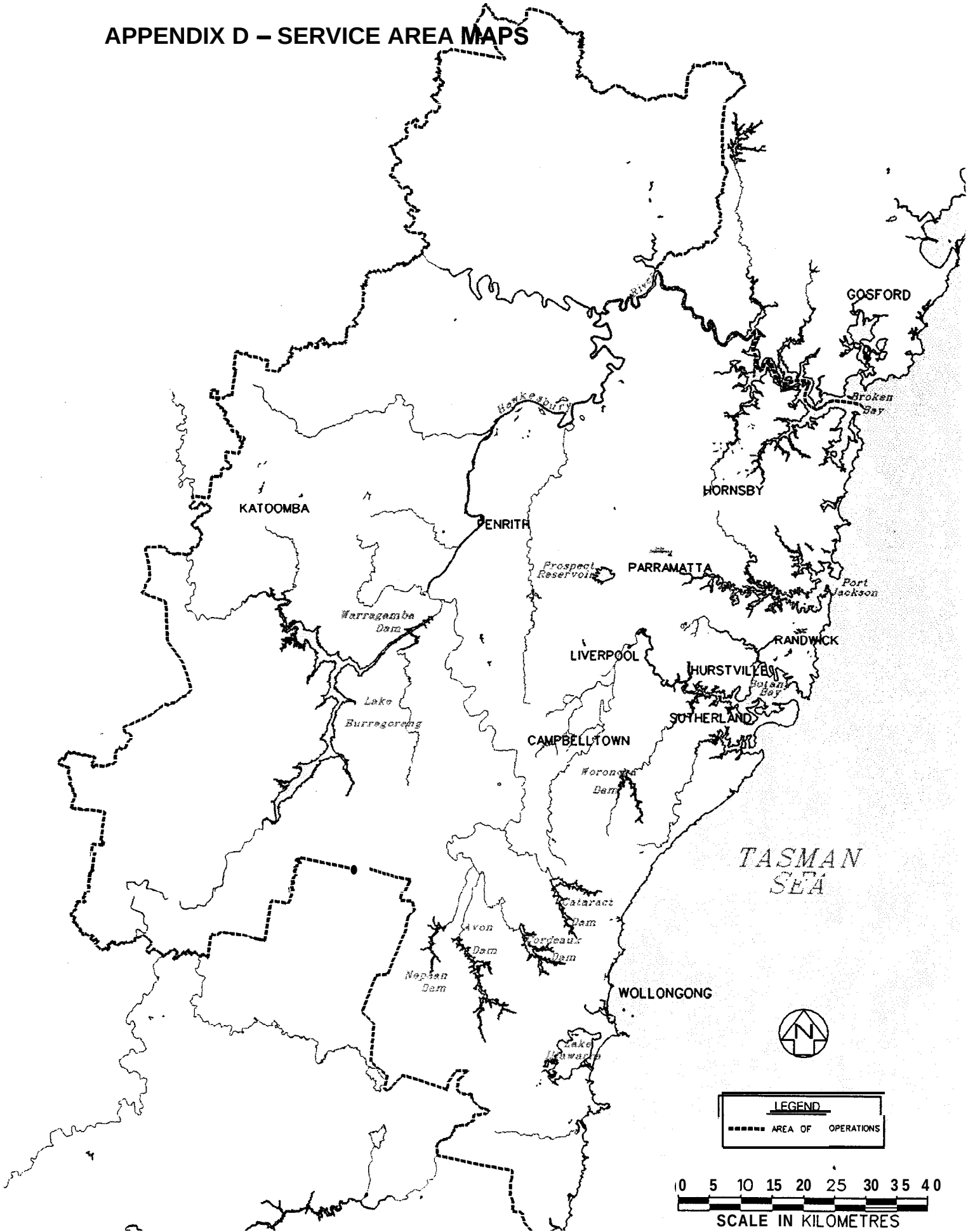
k) the social impact of the determinations and recommendations

l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or other wise).

(2) In any report of a determination or recommendation made by the Tribunal under this Act, the Tribunal must indicate what regard it has had to the matters set out in subsection (1) in reaching that determination or recommendation.

(3) To remove any doubt, it is declared that this section does not apply to the Tribunal in the exercise of any of its functions under section 12A.

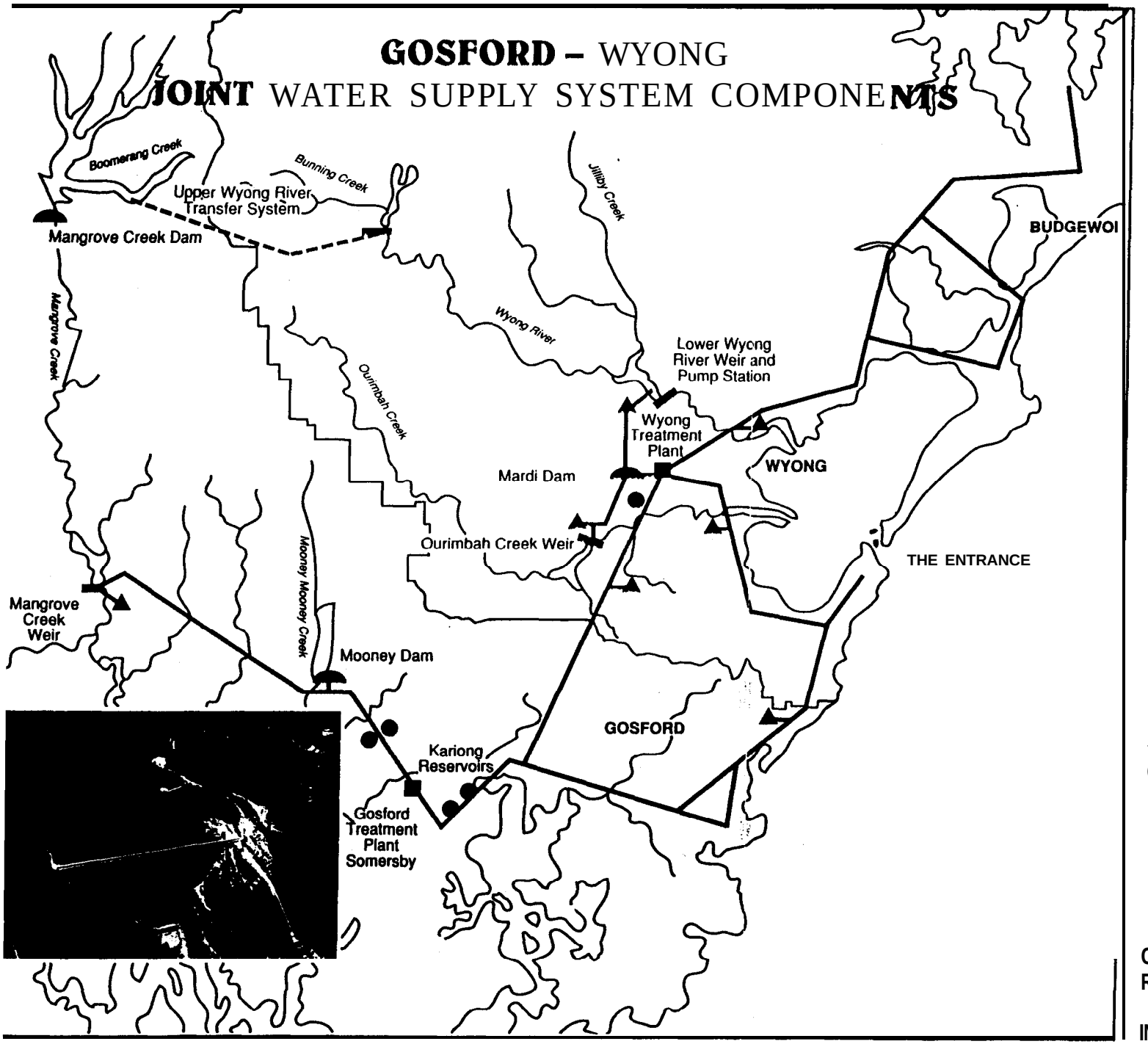
APPENDIX D – SERVICE AREA MAPS



HUNTER WATER CORPORATION

Area Served

GOSFORD – WYONG JOINT WATER SUPPLY SYSTEM COMPONENTS



LEGEND

- COUNCIL WATER MAINS
- JOINT WATER MAINS
- PUMP STATION
- RESERVOIR 3
- DAM-WEIR
- WATER TREATMENT PLANT
- TUNNEL
- DAM
- WYONG
- GOSFORD

The first waler supply system in Wyong Shire was constructed in the 1930s lo service the Wyong township.

In 1963 this was substantially augmented with the construction of Mardi Dam and reticulation systems to service The Entrance and Toukley areas.

Today, Wyong Council has an agreement with the neighbouring Gosford City Council, for development, operalion and maintenance of the Water Supply Headworks which include the waler calchmenls, dams, weirs, treatment plants and bulk distribution facilities.

This enables both councils lo work together lo share a common waler resource on the Central Coast, achieving cost savings for both Councils and increasing each Council's ability to provide a secure waler supply lo its customers.

The diagram opposite shows how waler can be taken from dams and rivers, lo be treated, and transferred lo both Council areas.

COVER PHOTO: The headwaters of Wyong River in the Yarramalong Valley.

INSERT: Mangrove Creek Dam.

APPENDIX E THE ARMCANZ GUIDELINES

ARMCANZ Guidelines for Water Pricing

1. Prices will be set by nominated jurisdictional regulators (or equivalent) who, in examining full cost recovery as an input to price determinations, should have regard to the principles set out below.
2. The deprival value methodology should be used for asset valuation unless a specific circumstance justifies another method.
3. An annuity approach should be used to determine the medium to long term cash requirements for asset replacement/refurbishment where it is desired that the service delivery capacity be maintained.
4. To avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs, externalities, taxes or TERs, provision for the cost of asset consumption and cost of capital, the latter being calculated using a WACC.
5. To be viable, a water business should recover at least the operational, maintenance and administrative costs, externalities, taxes or TERs (not including income tax), the interest cost on debt, dividends (if any) and make provision for future asset refurbishment/replacement (as noted in (3) above). Dividends should be set at a level that reflects commercial realities and simulates a competitive market outcome.
6. In applying (4) and (5) above, economic regulators (or equivalent) should determine the level of revenue for a water business based on efficient resource pricing and business costs. Specific circumstances may justify transition arrangements to that level.
7. In determining prices, transparency is required in the treatment of community service obligations, contributed assets, the opening value of assets, externalities including resource management costs, and tax equivalent regimes.

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A number of terms used require further comment in the context of these guidelines:

- The reference to *or equivalent* in principles 1 and 6 is included to take account of those jurisdictions where there is no nominated jurisdictional regulator for water pricing.
- The phrase *not including income tax* in principle 5 is in recognition of the achievement of absolute minimum viability when all costs are just recovered and no profit is generated. In this situation, income tax would not be incurred.
- *Externalities* in principles 5 and 7 means attributable and incurred environmental and natural resource management costs.
- *Efficient resource pricing* in principle 6 includes the need to use pricing to send the correct economic signals to consumers on the high cost of augmenting water supply systems. Water is often charged for through a two part tariff arrangement in which there are separate components for access to the infrastructure and for usage. As an augmentation approaches, the usage component will ideally be based on the long-run marginal costs so that the correct pricing signals are sent.
- *Efficient business costs* in principle 6 are the minimum costs that would be incurred by an organisation in providing a specific service to a specific customer or group of customers, or the minimum amount that would be avoided by not providing the service to the customer or group of customers. Efficient business costs will be less than actual costs if the organisation is not operating as efficiently as possible.