



INQUIRY INTO WATER AND RELATED SERVICES

**GOVERNMENT PRICING TRIBUNAL
OF NEW SOUTH WALES**

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RELATED SERVICES

October 1993



GOVERNMENT PRICING TRIBUNAL
OF NEW SOUTH WALES

Our Ref: 112

13 October, 1993

The Hon: J J Fahey MP
Premier of New South Wales
State Office Block
Macquarie Street
Sydney NSW 2000

Dear Premier,

Pursuant to Section 11 (1)(b) of the Government Pricing Tribunal Act 1992 the Tribunal has conducted a review of pricing policies for water and related services provided by the Water Board, Hunter Water Corporation Ltd, Gosford City Council and Wyong Council. This review also considered various matters which you requested the Tribunal to consider under Section 13 (1)(c) of the Act.

The Tribunal issued its Interim Report in May 1993 for public comment. I have pleasure in submitting the final report of this review to you, which has regard to the comments received from the public.

Yours sincerely,

Thomas G Parry
Chairman

INQUIRY INTO WATER AND RELATED SERVICES

FOREWORD

The Government Pricing Tribunal's first major inquiry into *Water and Related Services* has involved a comprehensive program of research and public consultations over some 12 months. The Tribunal issued its Interim Report in May 1993, and has benefited from a range of comments and submissions from water supply operators, various government departments, community interest groups and members of the public. A second round of Public Hearings and Seminars was also held subsequent to release of the Interim Report.

The Tribunal believes that the main conclusions and recommendations set out in the Interim Report largely stand. This Report confirms the Tribunal's proposed approach and recommendations, with some "fine tuning" and further elaboration in places. This Report also takes into account the Tribunal's Determination of maximum charges to be levied by the Water Board for the 1993/94 year, which was released after the publication of the Interim Report.

Water Bills - How High?

Many important issues were canvassed in the Interim Report and in subsequent public discussions surrounding both the Interim Report as well as the Water Board's pricing reform proposal submitted to the Tribunal mid-1993. Perhaps more than any other, the following broad issue stands out :

The Tribunal is concerned that bills could become unacceptably high and environmental outcomes will be poor unless there are improvements in the way in which standards are set and in the institutional framework within which the water industry operates.

This issue appears to be particularly important for the Sydney region, but also has important lessons for the management of the State's rural waterways. The Tribunal does not believe that "user pays" is the problem. In fact, there is reason to believe that better usage-pricing signals to consumers ultimately should help to better control the costs of water and wastewater supply and, hence, ease pressure on bills. The Tribunal will follow closely the effects of the current move to greater reliance on usage pricing in the Water Board area on SWB's costs and, hence, on customers bills.

The real problems revolve around "external" cost drivers as well as "internal" cost drivers. The external cost drivers are those that are largely outside the control of the operator; including, environmental standards and institutional or regulatory arrangements. The Tribunal firmly believes that regulators need to set standards that take into account the community's preferences and priorities and its "willingness to pay" for particular levels of "quality". With agreed standards clearly laid down, water suppliers should meet those standards on a catchment basis and provide services in the most cost effective manner within clearly specified regulatory structures.

In this context, it is important to note that the community does need to be well informed about the relevant environmental issues and choices in order to make "appropriate" decisions about willingness to pay for environmental outcomes. In this regard, the environmental movement has an important role to play, and government a key responsibility to ensure that informed views can be put by the community so that acceptable water, stormwater and wastewater standards are targeted.

The Tribunal firmly believes that there is a need for both better processes for setting environmental standards as well as an improved regulatory-institutional structure within which operators provide water services.

In the case of internal cost drivers, that is costs that are effectively controllable by the operator, the Tribunal believes that the Water Board (SWB) has experienced unacceptably large increases in its costs in recent years. Some of the cost blow-out is related to meeting higher environmental standards, which may be acceptable to the community that is paying the bill. Other costs have been imposed because of the uncertainties and conflicts in the institutional arrangements surrounding the business of supplying water, sewerage and stormwater.

The Tribunal believes that, as a matter of urgency, institutional arrangements need to be clarified with respect to the responsibilities, powers and activities of the various regulators and operators involved in water services. As already noted, this extends to the way in which environmental regulation takes place.

In the absence of clarifying and changing institutional arrangements, the Tribunal believes that the delivery of water services will be more costly than necessary, and unlikely to best meet the environmental outcomes and other standards that the community wants.

As has been pointed out by various environment groups, the Tribunal accepts that responsibilities for environmental outcomes need to be clarified during any transitional period. Thus, for example, as the SWB withdraws from various regulatory activities that conflict with its functions as an operator, it

would be appropriate for transitional arrangements to be put in place until the new regulatory-institutional arrangements are properly established and functioning.

As clearly stated in its Determination of Water Board charges for 1993/94, the Tribunal believes that *the Water Board has substantial scope to improve efficiency* by reducing its operating costs. Reduced operating costs will enable the Water Board to manage its capital expenditures better, while still meeting appropriate environmental quality standards and earning a "satisfactory" return for its owner.

The problem does not appear to be so great for the other water suppliers presently covered by the Government Pricing Tribunal Act and examined to date - the Hunter Water Corporation (HWC) and Gosford and Wyong Councils. Indeed, the Tribunal believes that, subject to future environmental standards and the speed with which cross-subsidies are dealt with, these water suppliers are likely to be able to reduce in real terms the bills of many of their customers.

The Tribunal expects that potentially large reductions in operating costs can be achieved by the Water Board, the Hunter Water Corporation and Gosford and Wyong Councils over the next few years. The Tribunal believes that the greatest gains can be made by the Water Board, and that these benefits should be applied to reducing the unacceptably high cross-subsidy burden which is currently imposed on the business sector. Residential bills in total should be held at an acceptable level. The Tribunal has made the first major move in this direction with its Determination of 1993/94 maximum charges - which is expected to result in a \$60 million reduction in the cross-subsidy faced by the non-residential sector.

The Structure of Prices

Apart from the main influences on the current and possible future level of bills, the Tribunal has considered the *structure* of bills and the principles that should be applied to pricing for different water and related services:

The Tribunal acknowledges the arguments put by some community groups in support of "social pricing", but, on balance, does not accept that water services should be priced to meet social or other non-commercial objectives. If the government wishes to pursue such objectives, the Tribunal believes that this should be done by way of explicit and transparent budgetary and tax instruments. As a consequence, the Tribunal believes that a mix of usage and access pricing is appropriate for most, though not all, prices for water services.

The application of this general principle has a number of elements and some key implications :

- ♦ The setting of prices must reflect true, *efficient* costs, including environmental costs, and allow for an "appropriate" return to the owner of the business. Cross-subsidies should be eliminated as rapidly as possible, with any social objectives accommodated via explicit transfer payments by government. Price setting must be transparent.
- ♦ The general principles apply not only to recurring charges but also to up-front charges, such as developer contributions. The Tribunal accepts the principle of a "net present value" approach to setting developer charges for new water and sewerage works. *Properly and transparently applied, the net present value approach to setting developer charges will avoid the problem of "double dipping", and should send correct signals to the community about the true costs of servicing outer-urban land relative to higher density development of already established areas.* A working party of the relevant operators and the Public Works Department has been established in order to advise the Tribunal on developing a methodology to set developer charges which accommodates the principles of "net present value".
- ♦ The Tribunal believes that charges for water services need to be clearly separate from any taxation element. The Water Board trade waste charges fail to clearly separate charges for handling trade waste from taxes directed to other purposes. *The Tribunal believes that this situation needs to be resolved as a matter of urgency.*
- ♦ The Tribunal believes that these principles should apply to all water suppliers across the State, including the various Country Town Water Supply operators. This will require an extension of coverage of the Government Pricing Tribunal Act.

Whereas some degree of "usage pricing" is regarded as appropriate for most water services, it is not practical for others. *The Tribunal believes that there is a good case for pricing residential sewerage services by way of a flat charge across all residential properties.*

For business customers, where use of wastewater services is more likely to place measurable, additional demands on the system, the Tribunal accepts that the more appropriate method of charging combines "usage pricing" with access charges. In these circumstances, "usage pricing" is likely to result in demand responses by business users of wastewater services, as compared with residential customers, where demand for such services is unlikely to be price sensitive.

The Tribunal believes that the provision of drainage and stormwater services could be carried out by local government and/or by specialist water suppliers, such as SWB on a catchment basis. *However, the Tribunal believes that charging for drainage and stormwater is most sensibly done at the level of local government.*

Stormwater and urban run-off is an increasingly important issue, with potentially serious consequences for the aquatic environment as well as for property damage. The Tribunal believes that the way in which stormwater is managed - standard setting, service delivery and charging - needs to be more carefully examined by the community and the various levels of government. The stormwater issue is part of the broader issue of institutional reform in the water industry in New South Wales.

A Central Coast Water Authority?

One particular institutional matter raised in the Report concerns the way in which water services are provided to the residents of the Central Coast. The Tribunal believes that there may be benefits from extending the successful Joint Water Supply Scheme to cover the delivery of water and sewerage services to the residents of Gosford and Wyong. Importantly, a better integrated structure will allow for future investment to be co-ordinated across the larger area, and may provide some cost economies to benefit users.

The Tribunal has no view as to the ownership of the assets of the Gosford and Wyong water and sewerage systems. This is a matter for the State and Local Governments to resolve. Whoever owns these assets, the Tribunal believes that the systems should be run as efficiently as possible, for the benefit of consumers and with an "appropriate" return to the owner(s). The establishment of a Central Coast Water Authority may provide an opportunity to better meet these objectives now and in the future.

Impacts of Pricing Reform

The move to pricing reform, including a greater reliance on "usage pricing" for water, the unwinding of existing cross-subsidies, and a move to more cost-reflective charges for capital works, will have consequences for some users. The Tribunal is concerned that the issue of transitional safety-nets be carefully considered where there are likely distributional consequences arising from such pricing reform. It is important to note that any transitional safety nets designed to accommodate structural change in pricing are quite different from more fundamental social and business policy decisions in the form of Community Service Obligations (CSOs), which are properly the responsibility of Government.

In some cases, it is clear that pricing reform will need to be phased-in and, for some groups, accompanied by appropriate, "safety net" arrangements. In its Determination of maximum charges for 1993/94 for the Sydney Water Board, the Tribunal placed considerable emphasis on the need for transitional safety-net arrangements as part of the move to greater reliance on usage pricing of water. Beyond transitional safety nets which are necessary to facilitate community acceptance of pricing reform, there may be a case for more

fundamental assistance for different groups of users - the so-called Community Service Obligation.

It is clear that on-going assistance, as distinct from transitional safety nets, targeted to any group of users, whether residential or business customers, is a matter for government by way of a Community Service Obligation (CSO). At the moment, the principal explicit CSO commitment in the Water industry is via automatic pensioner rebates. While this is a matter for government to decide, the Tribunal is concerned that the current rebates appear to have anomalies and may not address the social objectives that the community might expect. The Tribunal recommends that Government should review its CSO program covering water services in the State.

In order to maximise the desired environmental outcomes from a greater reliance on usage pricing and in order to give users the greatest opportunity to better control their bills, the Tribunal believes that the water suppliers should place considerable emphasis on educating the public about the scope for saving water as part of the transition to pricing reform.

Where to Now?

This Report sets out the Tribunal's thinking on a range of matters that are relevant to the delivery of water services in New South Wales. In a number of areas, we have indicated the approach that we intend to follow in our price setting functions over the coming years. In other areas, we have put forward our views about things that are the responsibility of the suppliers, regulatory agencies and, importantly, the Government.

The Tribunal believes that Parliament and the executive government should, over the next two years:

- ♦ develop better ways of setting standards, taking account of the processes outlined in this Report
- ♦ revise institutional arrangements to establish clear lines of responsibility and authority for water management in its broad sense
- ♦ extend the coverage of the Government Pricing Tribunal Act to water suppliers that are departments of local authorities
- ♦ clearly identify and separate out taxes and charges for water services, such as for trade waste
- ♦ establish an Office of Water to assist the Tribunal in applying the broad general principles for pricing to local-government water supply agencies across the State
- ♦ review the structure of arrangements for CSOs in the water industry

For its part, the Tribunal will:

- ♦ set the level of charges on the basis that substantial productivity gains can be achieved by the water suppliers for which the Tribunal is responsible
- ♦ enable the suppliers to finance required capital works, and pay appropriate dividends to their owner
- ♦ reduce cross-subsidies, with the aim of their eventual elimination
- ♦ work towards establishing medium-term price caps for each of the suppliers
- ♦ establish a basis for negotiations between suppliers and their major customers, where appropriate
- ♦ ensure the development of transitional "safety net" arrangements to protect the disadvantaged during the introduction of pricing reform
- ♦ encourage the adoption of preferred general pricing principles by water suppliers throughout the State

There is no doubt that there will be much more said (and needed to be said) on many of the issues raised in this Report. The Tribunal is keen for constructive debate to continue, and is pleased with the level and quality of discussion in recent months. Dealing with many of the matters, whether by Government, the suppliers or the Tribunal, will take some time; little can be expected to be achieved over night. However, the Tribunal is confident that appropriate change does take place, and will take the opportunity over the coming years to monitor and report on outcomes. In that context, the Tribunal hopes to be able judge the progress made and the results of reform so that it can put in place medium-term price caps for the water supply businesses for which it is responsible when it re-visits the industry with an up-date review in 1995.

Thomas G Parry
Chairman

Sydney
October 1993

FOREWORD.....	i
1 INTRODUCTION AND SUMMARY OF PROPOSALS AND RECOMMENDATIONS.....	1
1.1 Introduction.....	1
1.2 The key issues.....	1
1.3 Proposals and recommendations	10
2 CURRENT PRICE STRUCTURES.....	23
2.1 Introduction.....	23
2.2 Pricing structures in NSW	23
2.3 Comparison of pricing structures in Australian Cities	27
2.4 International trends in pricing structures	29
2.5 Composition of revenue	30
2.6 Community attitudes to pricing.....	32
2.7 Cross-subsidies.....	34
2.8 Summary.....	35
3 PRICING POLICY OBJECTIVES.....	37
3.1 Introduction.....	37
3.2 Principles for pricing policies	37
3.3 Aspects of pricing in practice.....	44
3.4 Implications for the structure of water prices	48
3.5 Summary of recommendations	50
4 DEMAND-SIDE MANAGEMENT	53
4.1 Introduction.....	53
4.2 Integrated least-cost planning	53
4.3 Environmental concerns	53
4.4 DSM options.....	54
4.5 DSM savings.....	54
4.6 Pricing and DSM.....	55
4.7 Barriers to DSM.....	56
4.8 DSM implementation.....	58
4.9 DSM and marketing	60
4.10 Summary of recommendations	60
5 ENVIRONMENTAL FACTORS AND CAPITAL WORKS.....	61
5.1 Introduction.....	61
5.2 Health and environmental objectives, guidelines and benchmarks	63
5.3 Customer service standards	64
5.4 Capital expenditure programs.....	65
5.5 The costs of quality	66
5.6 The benefits of water quality	70
5.7 Options for cost reduction.....	72
5.8 Concluding comments	77
5.9 Summary of recommendations	77

6 THE INSTITUTIONAL FRAMEWORK.....	79
6.1 Introduction.....	79
6.2 Current legal and administrative framework	80
6.3 Options	87
6.4 Other issues	95
6.5 Conclusion	95
6.6 Summary of recommendations	95
7 EFFICIENCY AND COSTS	97
7.1 Introduction.....	97
7.2 Costs	97
7.3 Total costs	98
7.4 Capital costs.....	101
7.5 Operating costs	102
7.6 Marginal costs	104
7.7 Cost drivers	106
7.8 Paucity of data.....	106
7.9 Performance indicators	107
7.10 Benchmarking	108
7.11 ARMCANZ Performance Review.....	110
7.12 Private sector participation and competition	112
7.13 Scope for productivity improvements.....	115
7.14 Summary of recommendations	117
8 FINANCIAL PERFORMANCE AND REVENUE REQUIREMENTS	121
8.1 Introduction.....	121
8.2 Performance measurement.....	121
8.3 Past financial performance	124
8.4 Financial projections.....	134
8.5 Establishing a revenue cap	141
8.6 Summary of recommendations	147
9 WATER CHARGES.....	149
9.1 Introduction.....	149
9.2 Pricing principles for water.....	149
9.3 Water pricing in practice	151
9.4 Application to the SWB.....	158
9.5 Application to the HWC.....	160
9.6 Gosford/Wyong	160
9.7 Country towns	161
9.8 Summary of recommendations	162
10 SEWERAGE CHARGES	163
10.1 Introduction.....	163
10.2 Pricing principles for sewerage charges.....	163
10.3 Sewerage pricing in practice	164
10.4 Application of sewerage pricing principles to the SWB	172
10.5 Application to the HWC	173
10.6 Application to Gosford	175
10.7 Application to Wyong.....	175

10.8 Application to country town schemes	177
10.9 Summary of recommendations	177
11 STORMWATER AND DRAINAGE SERVICES.....	179
11.1 Introduction.....	179
11.2 Current position.....	179
11.3 The problem of stormwater services.....	180
11.4 Possible pricing and institutional responses	183
11.5 Summary of recommendations	186
12 TRADE WASTE CHARGES.....	189
12.1 Introduction.....	189
12.2 Current trade waste charges	189
12.3 Principles for trade waste charges	191
12.4 Issues in the present trade waste policy.....	192
12.5 Appropriateness of the current trade waste standards	193
12.6 Appropriateness of current trade waste charges	195
12.7 Separation of trade waste pricing and environmental taxes.....	197
12.8 Summary of recommendations	198
13 DEVELOPER CHARGES AND URBAN DEVELOPMENT	201
13.1 Introduction.....	201
13.2 Current approaches to developer charges	201
13.3 Principles for developer charges	206
13.4 Issues in the current approaches to developer charges	207
13.5 Assessment of current approaches.....	212
13.6 Impacts of reform	214
13.7 Legal Issues.....	216
13.8 Summary of recommendations	217
14 IMPACTS OF PROPOSALS.....	219
14.1 Introduction.....	219
14.2 Recent distributional analysis.....	219
14.3 Impact of specific pricing proposals	220
14.4 Impacts on tenants.....	223
14.5 Impacts on economic development	227
14.6 Summary of recommendations	230
15 COMMUNITY SERVICE OBLIGATIONS AND SAFETY NETS.....	231
15.1 Introduction.....	231
15.2 Current approach to CSOs	231
15.3 Current CSOs	232
15.4 Non-CSO concessions	234
15.5 Principles for CSOs.....	235
15.6 Funding implications of CSOs	236
15.7 Safety nets	237
15.8 Extension of pensioner rebates	240
15.9 Assistance to families	242
15.10 Summary of recommendations	244

16 FORMS OF PRICE REGULATION.....	245
16.1 Introduction.....	245
16.2 Criteria for the form of price regulation.....	245
16.3 Alternative price control systems.....	246
16.4 Implementation of a CPI±X cap.....	251
16.6 Summary of proposals.....	255
17 LOCAL GOVERNMENT ISSUES	257
17.1 Introduction.....	257
17.2 Terms of reference	257
17.3 Advantages and disadvantages of extending coverage	258
17.4 Gosford and Wyong.....	260
17.5 Water supply agencies administered by the Public Works Department	262
17.6 Summary of recommendations	263
REFERENCES	265
GLOSSARY.....	267
ATTACHMENT 1 TERMS OF REFERENCE	271
A1.1 Review Of Pricing Policies Of Government Agencies Supplying Water And Related Services.....	271
ATTACHMENT 2.....	273
A2.1 Initial Submissions	273
A2.2 Submissions on Interim Report.....	275
ATTACHMENT 3.....	277
PUBLIC HEARINGS AND CONSULTATION.....	277
A3.1 Initial Public Hearings	277
A3.2 Further Public Hearings	280
A3.3 Public consultation	282

LIST OF ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACA	Australian Consumers Association
ACF	Australian Conservation Foundation
ACM	Australian Chamber of Manufactures
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AWRC	Australian Water Resources Council
BOD	Biological/Biochemical Oxygen Demand
BOO(T)	Build, Own, Operate (and Transfer)
CALM	Department of Conservation and Land Management
CHANGE	Coalition of Hawkesbury and Nepean Groups for the Environment
CMT	Catchment Management Trusts
CPI	Consumer Price Index
CPI±X	Consumer Price Index plus or minus an efficiency factor
CSO	Community Service Obligation
CTWSSP	Country Towns Water Supply and Sewerage Program
DOP	Department of Planning
DSM	Demand-Side Management
DWR	Department of Water Resources
EBIT	Earnings Before Interest and Tax
EC	Economic Community
EPA	Environmental Protection Authority
GPT	Government Pricing Tribunal
GTE	Government Trading Enterprise
HIA	Housing Industry Association
HWC	Hunter Water Corporation
IC	Industry Commission
kL	kilolitre (1000 litres)
MSB	Maritime Services Board
NCOSS	New South Wales Council of Social Service
NHMRC	National Health and Medical Research Council
NPV	Net Present Value
OECD	Organisation for Economic Co-operation and Development
OFWAT	Office of Water (Regulator of the UK water suppliers)
PWD	Public Works Department
ROR	Rate of Return
SEL	Special Environment Levy
SWB	Sydney Water Board
TCM	Total Catchment Management
UK	United Kingdom
USA	United States of America
WDRC	Written Down Replacement Cost

1 INTRODUCTION AND SUMMARY OF PROPOSALS AND RECOMMENDATIONS

1.1 Introduction

The Government Pricing Tribunal of New South Wales was established in July 1992 to review and determine maximum prices to be charged by New South Wales government trading enterprises (GTEs) for certain "declared government monopoly services".

This review of water supply and related services¹ is the first major review by the Tribunal.

Water services play an important role in the New South Wales economy. Supply authorities have invested in assets valued at \$35 billion for the delivery of these services. Typically, household water and sewerage bills exceed \$500 per annum.

However, these figures understate the importance of the water industry, because they do not reflect its impact on the environment. Increasingly, the value of water as a scarce environmental resource is being recognised. Wastewater and urban run-off problems are central to issues of river and beach water quality.

This review focuses on urban water services and the operations of the Water Board (SWB)², the Hunter Water Corporation (HWC), Gosford City Council and Wyong Shire Council³ in particular. The review is distinct from the annual price determination for the SWB and HWC.

1.2 The key issues

1.2.1 Environmental standards and capital works requirements

Pressure for higher standards

There is strong concern in the community about the quality of water at our beaches and in our rivers. A focal point in the Sydney region is the stress which the Hawkesbury-Nepean river system is under.

¹ Throughout the report the term "water services" refers to water, sewerage and drainage services, including trade-waste services where the trade waste is discharged into the sewerage system.

² The Water Board services the Sydney, Blue Mountains and Illawarra regions. It is often referred to as the Sydney Water Board and this report uses the abbreviation "SWB".

³ Collectively these agencies are referred to as 'water suppliers'. This term also includes water supply schemes run by other local councils and the Public Works Department. It is used to distinguish the operating authorities from other participants in the industry such as the Department of Water Resources and the Environment Protection Authority.

Concern with environmental impacts is part of a more general concern about the quality of water services, which also encompasses health, dam safety and customer-service standards. In each case there are demands for higher standards. Maintaining existing standards and meeting higher ones, (if agreed to) will drive the capital works requirements of the SWB and, to a lesser extent, the HWC. *The community's choices regarding the standards it wants will be critical for future water and sewerage prices.*

Management of the environmental impacts of water use, discharges and run-offs involves all parts of the water cycle: water harvesting, management of rivers and the various uses of water, supply of water services, treatment and disposal of wastes and management of urban run-offs. Hence, the participants in the water cycle extend well beyond the suppliers.

Whilst the requirements set for suppliers should not be considered in isolation, it is worth noting that standards in Sydney are lower than elsewhere in NSW. Australian standards are similar to, or slightly less stringent than, those aspired to in Europe and the United States.

Effects of higher standards on water bills

Higher service qualities may be highly desirable, or even essential, but will place upward pressure on bills.

The extent of pressure on prices from service standards depends on the capacity and technology of the current systems. In general, Gosford, Wyong and the HWC already achieve higher standards than the SWB. Hence, the challenge to meet higher standards is not as demanding for these suppliers as for the SWB.

The most likely outcome for bills will depend not only on future standards but also on assumptions about productivity gains, the removal of cross-subsidies, rates of return and growth. A working party established by the Tribunal has provided estimates which suggest that if the SWB was to meet the standards currently met by other suppliers, bills could rise by 13% in real terms over the next 10 years⁴. According to the working party estimates, if the future standards considered most likely were met, bills could rise by around 25-30% over the next 10 years, unless there were substantial increases in productivity. The impacts on the other suppliers examined were much smaller. The working party estimates showed a 7% increase in HWC bills to meet the most likely standards.

Concerned about the size of these potential increases in bills, the Tribunal wishes to ensure that all possible steps are taken to offset or defer such price increases.

⁴ These estimates assume no increase in productivity.

Ways to offset the impact on bills

A number of factors may, in part, offset pressures on bills:

- Substantial productivity gains should be possible.
- Improvements in the way standards are set and the industry is regulated may achieve higher standards at lower cost to the community.
- Demand-management measures can encourage more careful use of water and defer spending on new capacity.

The potential for productivity gains by suppliers is critical. Substantial productivity gains will make higher standards more affordable, offsetting the impact on average bills. However, there will also be pressure for productivity improvements to provide for reductions in cross-subsidies from non-residential customers and, in the case of the SWB and HWC, appropriate dividends to the Government.

Improvements in the way in which standards are set and met may also reduce the pressures on prices.

Current institutional arrangements may deter rather than encourage an integrated approach to water quality. Environmental policy must consider all means to ends such as improved river quality. Clearly, point source discharges from treatment plants are an important element in river quality. However, policy should consider all pollution sources, including stormwater and direct discharges by industry, as well as options for the management of river flows. In the absence of this broader approach, higher standards for discharges from sewage treatment plants may not be the most efficient or effective instrument.

A clearer allocation of responsibilities for, and co-ordination of, the management of river systems and the licensing of abstractions and discharges is likely to result in higher water quality at lower cost. This will require a better defined separation of regulation and water management from the operation of water and sewerage schemes. *The Tribunal considers that the Government should review the current administrative and legal arrangements and has put forward options for consideration.*

Longer licence periods for discharges may also help. The short period for many licences creates uncertainty and discourages investment that might reduce the long-term costs of meeting these standards.

Environmental standards should be set by the Government on advice from the EPA and others. *The Tribunal recommends that the review of standards should incorporate cost-benefit analysis of changes in standards and an assessment, if possible, of the community's willingness to pay for higher standards. Public participation in the setting of standards is crucial.* The community needs to be informed of the costs and benefits of alternative standards and the means of

meeting these standards. Such participation may help avert decisions which would necessitate unacceptable increases in bills.

Once decisions about standards have been reached, with appropriate community consultation and consideration of willingness to pay, the standards could be incorporated into each supplier's operating licence. The Tribunal would ensure that the suppliers could earn sufficient revenue on required investments, or achieve sufficient savings to meet the standards.

Prices and demand-management policies are vital to managing the environmental impacts of water supply and use. If consumers are not given the correct signals, they cannot be expected to manage their own use of water or discharges in a manner consistent with society's resource objectives.

Priority must be given to the structure and level of prices, but non-price demand management can also play a role. In the short-term, water use is not very sensitive to price changes. Demand management involves educating customers in the better use of water. It can also help to build customer support for price reforms by demonstrating an organisational commitment to environmental objectives. Demand-management policies can also be used to smooth the peaks in water prices that may otherwise occur during periods of drought or as the need for a new dam increases.

1.2.2 Efficiency and productivity growth

The need for productivity growth

Many demands are being made on water suppliers by their various stakeholders. There is strong pressure from the community to improve river and beach water quality and to defer construction of new dams. The Government, as owner, understandably wishes to obtain a better return on its investment in the HWC and SWB. Non-residential customers want the current cross-subsidies to residential customers reduced or eliminated.

Each of these pressures will affect the prices charged by water suppliers and may push up water bills paid by households. These pressures are greatest for the SWB. Substantial productivity gains must be achieved if these demands are to be met without imposing excessive burdens on residential customers.

There will be less pressure on bills in Gosford and Wyong over the medium-term. The infrastructure in these regions has recently been upgraded and expanded with a subsidy of \$291 million from the NSW Government made available since 1975. As the regions expand, increased capacity utilisation will tend to offset the possible effects of other factors on bills. Even though the pressures may be less intense, customers still expect the services to be provided efficiently and at the lowest cost possible, given desired service qualities.

Current levels of efficiency

Available data suggest that suppliers in NSW have not generally been able to achieve the same productivity gains as the UK water industry has achieved. In the four years to 1991/92 the HWC reduced its average total cost per head by 16% in real terms and Gosford achieved a reduction of 9%. In the same period the SWB's total costs per head of population increased by 8% in real terms.

The SWB's operating costs per property have risen by 23% in real terms over the past five years. Over this period labour costs per employee have increased by 34% in real terms. Although SWB has contracted out some activities, this saving has not been translated into reductions in total costs. In fact, labour costs plus contract costs have continue to rise over the past four to five years. Contract and consultant costs rose from \$84 million in 1989/90 to \$165 million in 1991/92.

The results of an international benchmarking study of the SWB will be particularly important for judgements on the potential for efficiency improvements. Preliminary results from the study are by no means conclusive, but they do suggest that very substantial gains can be made.

Consideration of the scope for productivity gains has been hampered by the limited data available. In the light of this, the Tribunal is looking at options for specifying and validating data for performance monitoring. It also wishes to encourage other suppliers to undertake benchmarking studies.

Scope for efficiency gains

The Tribunal's preliminary view is that the scope for reductions in SWB costs is very substantial. In the near term, the extent of the gains may be limited by the capacity to manage organisational change rather than by the limits of best practice. The HWC has shown a greater capacity to control its costs in recent years. Although the scope for further cost reductions may be smaller than for the SWB, the Tribunal considers that the HWC may be able to achieve productivity gains in excess of the 2% per annum included in its licence agreement.

The Tribunal considers that both the HWC and SWB should be able to achieve significant real reductions in overall charges in the near future. Various steps can be taken to provide an environment which will induce or support more rapid productivity gains. One step is the design of price regulations which can limit revenues, set tough productivity goals, and provide scope for the organisation to retain the benefits of exceeding these goals.

As part of the regulatory process the Tribunal has proposed improved financial information, stronger cost analysis procedures and the benchmarking of performance.

Increased competition within the industry or contracting-out are often seen as important means of achieving productivity gains. Although the water industry is largely a natural monopoly, input competition can be encouraged. To date, contracting-out by the SWB has not flowed through to bottom line benefits. However, the Tribunal considers that the experience of other organisations suggests gains can be achieved.

There may also be advantages in breaking the larger suppliers into a number of regional suppliers. This would permit comparisons of performance between regions. It might also make it easier for suppliers and their customers to consider whether the benefits of higher quality in the regions outweighed the costs.

Organisational frameworks may also be another factor in improving performance. Clarifying the objectives of the organisation, defining the responsibilities of management, and separating policy and operational functions, are all essential elements of corporatisation, which can provide a framework conducive to efficiency improvements. A comparison of the SWB's and HWC's operating frameworks provides a good example of this. The HWC's operating licence provides a much clearer delineation of its role in environmental and river management than has been provided to the SWB.

Incentives for the efficient operation of the Gosford and Wyong water supply schemes might be enhanced if they were established on a more commercial and independent basis. *Consequently the Tribunal recommends that Gosford and Wyong Councils explore opportunities for extending the operations of the current Joint Water Supply Scheme to a Central Coast Water Authority, covering water and sewerage services.*

Current financial position and revenue requirements

In assessing financial performance, the Tribunal has examined a number of criteria generally applied by financial markets in assessing financial status.

Although the rate of return on a replacement-cost basis for the SWB and HWC is relatively low, their cashflows are quite strong. In recent years each of the water suppliers has had stable or reducing levels of debt and has largely funded substantial investment programs which are expanding the scope of the businesses from internal sources. Whilst doubt exists as to whether the SWB will be able to maintain a AAA rating, very few businesses have such a rating. The Tribunal does not consider that a AAA rating is necessarily optimal if it places excessive demands on current customers to fund the development of the system.

Under these circumstances, the Tribunal considers that the benefits from the baseline projections of productivity improvements can, and should, be passed on to consumers, especially to unwind the existing burden of the cross-subsidisation of residential users by non-residential users.

1.2.3 Price reform and its impacts

Issues in pricing

The Tribunal is concerned with both the absolute level of bills and the structure of prices. As noted above, future service standards and capital works requirements and the scope for efficiency gains will be vital to determining suppliers' revenue needs.

The Tribunal is concerned that the structure of water prices should provide customers and suppliers with the correct signals for decisions regarding whether to use and supply water services. The key issues in the *current* price structures are that:

- charges may not reflect the scarcity of water or the true costs of discharges
- discrepancies between the costs of services and the charges levied result in large cross-subsidies which disadvantage some customers while benefiting others.

Prices and resource usage

While signalling the costs of the services provided, the structure of prices could allow for the environmental impacts of the services provided. For example, construction of a new dam for Sydney might impose substantial costs through the loss of wilderness areas and reductions in stream flows. If so, the usage charge for water should recognise these factors.

Responses to price signals will vary. Experience in Sydney and overseas indicates that industrial customers may respond quite strongly to changes in waste pricing by reducing discharges. Water use by households is likely to be less responsive. However, charges which reflect the true costs of water services are the starting point for better usage of these resources.

The Tribunal supports the adoption of a simple two part tariff for water comprising an access charge and, as far as possible, a uniform usage charge from the first kilolitre (kL) of water consumed. This provides the clearest possible signal of the cost of the water consumed. In moving to this structure, the current property-based charges should be phased out.

Volume-related charges for wastewater discharges can provide a valuable signal to non-residential customers. However, the merit of extending this approach to residential customers is doubtful and the Tribunal does not wish to encourage the introduction of such charges where they do not already exist.

In the case of **stormwater services**, the Tribunal considers that an important step in solving the problem of adverse environmental effects is to improve

specifications for accountabilities and performance standards. Given the nature of the service, pricing at household or business level has a limited role to play.

Trade waste charges can provide important signals to industrial customers regarding the costs imposed by their discharges. However, the Tribunal believes that the current charges levied by the SWB confuse the role of a price and a tax. The Tribunal proposes that the current charge be divided into a charge which reflects the costs to the water supplier of treatment and disposal and an environmental tax is designed to discourage discharges in order to reduce adverse environmental consequences. The tax element would be a matter for the Government to determine on advice from the EPA.

The form of urban development can be a key issue for both the future costs of the supplier and the management of the environmental impacts from urban development. Developer charges can play an important role by signalling the relative costs of development in different locations (including existing areas). At present developer charges are calculated by various methods and with differing levels of cost recovery. The Tribunal proposes that developer charges should take into account future revenues and be based on an analysis of the project using standard investment appraisal techniques. The HWC has recently adopted a similar approach.

Cross-subsidies

Rates based on property values have been a major source of revenue for water suppliers in NSW and Australia. In many ways such charges are more like a tax than a price. Their use reflected a desire to use the pricing of utility services to achieve distributional objectives. Distributional objectives are a concern of government, but it is questionable whether the pricing of services such as water or electricity is the most appropriate or effective way of achieving these objectives.

Both the SWB and the HWC levy charges on non-residential customers based on property values. These charges are the primary source of cross-subsidies from non-residential to residential customers. The SWB estimates that non-residential customers subsidise residential customers by \$300m per annum. Property rates can place particularly heavy burdens on commercial customers in central business districts and regional retail centres who consume relatively small quantities of water.

Because business will pass on these charges wherever possible, the burden of these charges is likely to fall on customers, landlords, suppliers, employees or the owners of the business. Exporters and businesses facing strong competition from imports find it more difficult to pass such costs on. Distortions such as these can contribute to a bias against exports.

The Tribunal considers that water suppliers should be able to enter into bilateral negotiations with major customers. The Tribunal would need to be assured that such agreements would not result in the subsidisation of major customers by other customers.

Process of price reform

Arguably, the primary role for the pricing of water services should be that of signalling to the community the costs of providing the services. Using prices to pursue other objectives can blur these signals and reduce their effectiveness. The Tribunal is concerned that price restructuring should not impose excessive transitional burdens on low income and disadvantaged groups. *The Tribunal considers that the suppliers should be responsible for managing and funding transitional assistance necessary for the reforms to be acceptable to its customers.* The Government must decide whether to provide long-term assistance through extensions of current community service orders (CSOs).

The HWC has made substantial progress in the reform of price structures since 1982. Further movements towards cost-reflective tariffs will have a major effect on customers of the SWB.

The SWB's 1992/93 usage charges for water consumption up to 300 kL were well below the marginal costs of supply. The 1993/94 price determination addressed this issue and reduced the current cross-subsidy. Further progress in removing this cross-subsidy is likely to depend on the extent of productivity gains achieved and the demands placed on these gains in funding environmental programs and higher returns to the owner.

Form of price regulation

The Tribunal wishes to establish a form of price regulation which:

- ♦ sets a $CPI \pm X$ cap on average revenues per property for a period of four to five years
- ♦ sets principles or guidelines for the restructuring of prices within a target period, while giving their suppliers considerable freedom and responsibility in the design and implementation of price restructuring

Uncertainty within the industry and gaps in available information, such as the scope for cost reductions by the suppliers, make it particularly difficult to set a medium-term cap at this time. In view of this, and the desirability of matching the period of the price cap with the licence period for the HWC, the Tribunal wishes to defer the setting of a medium-term cap until 1995. However, the Tribunal has set out in this report an indicative time path for the restructuring of prices.

An issue which the Premier specifically asked the Tribunal to address is the application of the Tribunal's Act to water services provided by local

authorities throughout the State. *The Tribunal considers that its involvement should be limited to developing broad principles for pricing. A water advisory or policy agency should oversee and monitor the implementation of these principles.*

1.2.4 Conclusion

The Tribunal is concerned that programs planned by NSW water suppliers, especially the SWB, to achieve higher quality may place unacceptable pressures on costs and bills. The Tribunal believes that this outcome can be averted through: (a) the establishment of better processes for determining standards and capital expenditure; (b) an improvement in productivity leading to cost reductions (c) a program of demand management (including price restructuring).

The Tribunal will look to the Government to contribute to a better outcome through changes in institutional structures and ways of setting standards. *For its part, the Tribunal will require suppliers to investigate and report on the community's priorities and its willingness to pay for higher standards, before passing on cost increases to customers. The Tribunal also believes that substantial efficiency improvements are possible, especially for the SWB, and intends to set maximum prices on this basis.*

1.3 Proposals and recommendations

The proposals and recommendations put forward in this report are listed below and numbered in accordance with the chapters which address them. Matters which the Tribunal can include in its determination of water prices are listed as proposals. Matters which the Tribunal considers are necessary for better price outcomes, but which others must enact are listed as recommendations.

Proposal 3.1: The Tribunal supports and intends to pursue the introduction of more cost-reflective pricing structures. The movement toward cost-reflective prices must take into account the practical aspects of pricing and the impacts of these changes. The pace of reform will be influenced by the extent of the efficiency gains achieved, and the efficacy of safety nets put in place by government.

Proposal 3.2: The Tribunal considers that suppliers should be able to negotiate individual contracts with large customers. However, it requires that:

- ♦ *suppliers publish clear guidelines explaining the basis for negotiating individual contracts*
- ♦ *the Tribunal be assured that the prices set under negotiated agreements at least cover the costs of the services supplied.*

Proposal 3.3: The Tribunal proposes that the highest priorities should be given to:

- ♦ *aligning usage charges for water to costs*
- ♦ *reviewing developer charges*
- ♦ *reviewing access charges for large meter sizes and removing of property-based charges for non-residential customers.*

Recommendation 4.1: The Tribunal recommends that water suppliers develop a methodology for evaluating least-cost planning options which incorporates both demand-side and supply-side options.

Recommendation 4.2: The Tribunal recommends that all water suppliers covered by this Review explore and institute demand-side management programs where cost-effective.

Recommendation 4.3: The Tribunal recommends that the Government consider measures to encourage all new residential and commercial buildings to be fitted with water-efficient appliances where economic.

Recommendation 4.4: The Tribunal recommends that water suppliers consider rebate schemes to customers who install water efficient appliances where cost-effective.

Recommendation 4.5: The Tribunal recommends that water suppliers provide customers with bills that clearly explain the bill's components and indicate how customers can reduce their bills by conserving water.

Recommendation 4.6: The Tribunal recommends that water suppliers and electricity distributors be encouraged to develop joint energy and water-efficiency programs.

Recommendation 4.7: The Tribunal recommends that water suppliers lead by example in investigating cost-effective ways of reducing water loss in their respective distribution systems.

Recommendation 5.1: The Tribunal recommends that major capital expenditure to improve environmental quality not be undertaken without evidence that customers are 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 expenditures in the absence of such information.

Recommendation 5.2: The Tribunal recommends that Water suppliers investigate the willingness of customers to pay for the most likely capital expenditure programs required to meet proposed standards. This consultation should be on the basis of site-specific information about a range

of options. To provide a sound basis for establishing priorities it is necessary to consider the capital program as a whole, as well as its component parts.

Recommendation 5.3: The Tribunal recommends that standards be determined by the State Government following extensive public consultation about the consequences of choosing alternative standards. A cost-benefit approach should be followed to establish new standards and review old ones.

Recommendation 5.4: The Tribunal recommends that environmental and customer service standards be defined for five to eight years in operating agreements between water suppliers and their regulators. Standards would be revised before the expiry of the licence period.

Recommendation 5.5: The Tribunal recommends that the choice of a particular standard of service should be made following public consultation, with information about the consequences of choosing various standards made widely available. The provision of information about the consequences of choosing alternative options and encouragement of a range of views are important first steps in this process.

The Tribunal wishes to avoid a situation where standards are pushed up too far and too fast, and where the resulting increases for bills become unacceptable to the public.

Recommendation 6.1: The Tribunal recommends that the Government implement improved legal and administrative arrangements for the regulation of water.

Recommendation 6.2: The Tribunal recommends that the elements of improved legal and administrative arrangements should include:

- the development of licence agreements between water operators and their owners, encompassing clearly stated operating standards, the basis of environmental water allocations, and any non-commercial obligations.*
- clear separation of regulation and water management from the operation of water supply and sewerage schemes. Operators should have a commercial focus.*
- a review of the current arrangements for setting health, dam safety, environmental and customer service standards to define what the community wants from a waterway and to weigh the benefits against the costs.*
- assignment of responsibility for monitoring the achievement of water quality standards and taking or co-ordinating action to meet those standards.*
- a better focal point for community efforts to improve water quality.*

Recommendation 6.3: The Tribunal recommends that the regulator or manager finance its activities through fees from licensing abstractions or discharges. These fees should in the first instance be cost-reflective, but might also include a pollution tax varying with the amount of the damage (load-based pricing). The cost-reflective part would be scrutinised by the Tribunal. The pollution tax would be identified separately and paid to consolidated revenue.

Proposal 7.1: The Tribunal proposes that the option of a certification system to validate the costs of NSW water suppliers be considered after industry consultation. There are benefits in making information as accurate as possible, but these should be weighed against the danger of overburdening the industry with regulatory compliance costs.

Proposal 7.2: The Tribunal proposes that water suppliers develop activity-based financial information. The Water Inquiry has highlighted the fact that current information systems are not necessarily geared to providing the information that the water suppliers or a regulator would require in order to set prices which reflect the cost of providing a particular service.

Recommendation 7.3: The Tribunal recommends that the HWC undertake an international benchmarking study similar to the study being undertaken by the SWB. The Tribunal also recommends that industry participants consult each other to achieve uniform approaches to benchmarking wherever possible.

Recommendation 7.4: The Tribunal recommends that private sector participation in the water suppliers' infrastructure be examined in order to make the industry more cost-efficient. The extent of private sector participation in the water suppliers' infrastructure development ranges from full build, own, operate schemes to design only or construct only contracts.

Recommendation 7.5: The Tribunal recommends that water suppliers develop a methodology to allow the overall cost of BOO(T) projects to be compared with other fully costed alternatives including the traditional funding and operation by the water supplier.

Proposal 8.1: The Tribunal will provide a pro forma return to each of the water suppliers to encompass the minimum financial and statistical data required for pricing submissions. A draft of the return will be given to the suppliers by 1 December 1993 with the intent being that the format of the return will be finalised for use by those suppliers submitting pricing proposals for decisions subsequent to 1 January 1994.

Proposal 8.2: The adoption of rate of return targets is contingent upon the resolution of income and asset measurement problems. The total elimination of a dividend from the SWB to the Government to reduce cross-subsidies, is not practicable in the Government's current budgetary position. However, the

SWB's profits and the dividend to the Government cannot be insulated from SWB inefficiencies. The Tribunal proposes that cross-subsidies largely be reduced from funds made available by efficiency gains.

Recommendation 8.3: The Tribunal recommends:

- ♦ community involvement in setting the environmental standards which will drive capital requirements and customers' bills*
- ♦ a greater willingness on behalf of the SWB to fund more of its capital expenditure program through debt*
- ♦ recognition in the price setting process of the problems inherent in performance measurement.*

Recommendation 8.4: The Tribunal recommends real price reductions for each of the water suppliers over the short to medium-term. These price reductions should be made possible by productivity gains. The size of the reductions will vary amongst the water suppliers based on their current level of efficiency and financial viability.

Proposal 9.1: The Tribunal proposes that, where possible, water suppliers move to a simple two-part tariff with a uniform, flat-rate usage charge. The phasing of these changes will need to be managed to reduce adverse distributional effects during the transition to new pricing structures.

Proposal 9.2: In the absence of data indicating significant cost savings, the Tribunal does not recommend seasonal or time-of-day pricing, at this stage. However the Tribunal would not wish to prevent individual water suppliers from introducing seasonal charging where the supplier can demonstrate net benefits.

Proposal 9.3: In the absence of any clear evidence to the contrary, the Tribunal proposes that annual residential charges for water supply within a supplier's area of operation should be uniform.

Proposal 9.4: The Tribunal agrees with the concept of varying access charges according to meter size where this reflects cost differences, but has concerns about the current scale of charges. It proposes that suppliers review the current scales for access charges before the next annual determination. The review should seek to determine the extent to which current charges reflect identifiable costs.

Proposal 9.5: The Tribunal proposes that the property rates element in water charges should be removed over time. Removal of property rates on non-residential customers should be accorded a higher priority than the removal of residential rates. The phasing of both will depend on the capacity of suppliers to make efficiency gains and on the alternative claims made on the benefits of those efficiency gains.

Proposal 9.6: The Tribunal proposes that the SWB adopt the structure outlined above as a goal to be achieved within five years. The first priority is to set the usage charge at a more realistic level for small volumes of water consumption. The schedule of meter-based charges for non-residential customers should also be reviewed as a high priority. Removal of the property rates imposed on residential customers is an essential element of long-term pricing goals. However, it should be given a low priority during the transitional period. Removal of property rates from non-residential customer's bills should be given a higher priority.

In view of the magnitude of these changes, non-residential rates will need to be phased-out gradually. More rapid productivity gains will be required to offset these impacts.

Proposal 9.7: The Tribunal proposes that the HWC adopt these principles as pricing reform goals for the next three years. An early priority should be the review of access charges for non-residential customers.

Proposal 9.8: The Tribunal proposes that Gosford and Wyong Councils:

- examine the scope for reductions in the 200kL free water allowance.*
- undertake an analysis of the marginal costs of water supply and adjust the usage rate to better reflect these costs.*

Proposal 9.9: The Tribunal proposes that the PWD or an 'Office of Water' (see Chapter 17) should review the current guidelines for country town schemes to support the phased introduction of two-part or inclining block tariffs. If inclining block tariffs are to be used, the step at which the top rate cuts in should be reduced, over time, to no more than 200kL per annum.

Proposal 10.1: The Tribunal endorses the use of two-part tariffs in charging non-residential customers for domestic-type waste discharges.

Proposal 10.2: The Tribunal considers that a uniform access charge is an administratively efficient and equitable means of charging for sewerage services to residential customers in the same service area. However, the Tribunal wishes to leave open the option for authorities to implement usage-based charges where they can be shown to yield sufficient benefits to outweigh the transitional and administrative costs and where the method of assessing discharges can be shown to be fair. Given that the HWC has already made the transition to a usage-based charging system, the Tribunal endorses its continuation. However, it will require the HWC to review the usage charge and discharge factor prior to commencement of the next licence period in July 1995 to ensure the charging system has become more cost-reflective. Changes would be implemented in the life of the new licence period.

Proposal 10.3: The Tribunal supports in principle the calculation of access charges on the basis of meter size adjusted for discharge factors. However, the scale of such charges should be demonstrably based on the impact of maximum discharges on costs. Customers should be informed of the scope and basis for the assessment of discharge factors.

Proposal 10.4: The Tribunal proposes that water supply authorities should seek to move over time towards more cost reflective region-based charges for non-residential customers.

Proposal 10.5: The Tribunal proposes that annual sewerage charges for residential customers should remain common across the area of service for each authority. Differences in costs for new developments should be signalled through developer charges.

Proposal 10.6: The Tribunal considers that where environmental levies are used to fund work which is essential to meet established environmental standards, the charges should be built into the price structures as normal income. Beyond this point, environmental levies could be used as a pollution tax.

Proposal 10.7: The costs of new connections to the sewerage system should, in principle, be recovered from those being connected. To the extent that the Government considers the charges would have unacceptable regional equity consequences, subsidies could be provided as a CSO.

Proposal 10.8: The Tribunal proposes that the SWB adopt the above changes as goals for the reform of pricing structures over the next five years. This will require:

- ♦ the phasing out of current property rates*
- ♦ review of usage charges for non-residential customers to reflect location*
- ♦ review of access charges for non-residential and residential customers*

Proposal 10.9: The Tribunal proposes that the HWC adopt the goal of achieving cost-reflective sewerage charges in the licence period commencing July 1995. This would involve:

- ♦ reviewing and amending current usage charge for households and discharge assumptions to better reflect cost structures*
- ♦ removing the current discount on the usage charge for large dischargers and aligning the charge with costs (including locational differences)*
- ♦ reviewing the scale of access charges based on meter size*

Pending these changes, the HWC should continue to give priority to the removal of the remaining property rates, with the target of complete removal within two years.

Proposal 10.10: The Tribunal proposes that Gosford Council adopt the goal of achieving cost-reflective sewerage charges over the next three years. This would involve:

- ♦ *phasing out property rates on residential and non-residential customers*
- ♦ *introducing access charges related to meter size*
- ♦ *introducing usage charges for non-residential customers*

The phasing of these changes will depend on the distribution and magnitude of the impacts on the residential and non-residential sectors, and will be subject to approval by the Tribunal.

Proposal 10.11: The Tribunal proposes that Wyong Council adopt the goal of achieving cost-reflective sewerage charges over the next three years. This would involve:

- ♦ *phasing out property rates for non-residential customers*
- ♦ *introducing access charges related to meter size*
- ♦ *introducing usage charges for non-residential customers*

The phasing of these charges will depend on the distribution and magnitude of impacts on the residential and non-residential sectors and will be subject to approval by the Tribunal.

Proposal 10.12: The Tribunal proposes that guidelines be developed consistent with the cost-reflective principles outlined above, for implementation by country town water and sewerage schemes. This task could be carried out by the PWD or the proposed Office of Water.

Recommendation 11.1: The Tribunal recommends that:

- ♦ *environmental standards for stormwater and urban run-off should be set and integrated with the standards for other discharges*
- ♦ *decision-making should be based on or co-ordinated with a stormwater catchment area*
- ♦ *accountabilities and responsibilities for the provision of stormwater services should be clarified*
- ♦ *reform of stormwater should focus on the incorporation of stormwater infrastructure costs in developer charges and the alignment of charging structures with defined accountabilities for stormwater services*

Recommendation 11.2: The Tribunal recommends that the Government consider implementation of the preferred proposal outlined above. Its key features are the setting of explicit performance standards by the environmental regulator and the clear allocation of responsibility for stormwater services to local government.

Proposal 12.1: The Tribunal proposes that the HWC adopt a transparent process for the proposed review of trade waste charges. Ideally, this should incorporate advice from independent experts. The consultative process proposed below for the SWB may provide a suitable model.

Proposal 12.2: The Tribunal considers that the SWB must remain responsible for the establishment of standards which reflect the organisation's operational constraints. Rather than supporting the establishment of an independent committee responsible for setting standards, the Tribunal proposes that the SWB establish a consultative committee with representatives of the SWB, the EPA, industry, and independent experts.

Recommendation 12.3: The Tribunal recommends a framework in which:

- ♦ *the EPA sets effluent standards for wastewater treatment plants*
- ♦ *the SWB sets absolute pollutant levels for the wastewater it receives. The SWB should set charges based on the costs of treating those pollutants it will accept.*
- ♦ *usage charges vary according to the costs of treatment at the receiving plant*
- ♦ *the SWB retains the revenue from the usage charges it sets*
- ♦ *the government sets, via the EPA and the Treasury, pollution taxes that are explicit and separate from usage charges. In principle, such taxes need not be limited to the Sydney region. Adjustment assistance to industry may be desirable where there are substantial changes in tax rates. Assistance should be determined and funded explicitly by the Government.*
- ♦ *The Government determines the allocation of revenue from such taxes to general funds and specific environmental trusts. This framework should*

apply to regions outside the SWB's area of operation as well as to the SWB.

Recommendation 12.4: Pending clarification of the current tax component of SWB's current charges, the Tribunal recommends that the current fees for discharges which meet the 1994 guidelines should be nominated as user charges to be retained by the SWB. Charges above this level should be nominated as a tax, the funds from which would be transferred to the environmental trusts. This regime could continue with both the charge and tax components remaining at current levels until 1994. In the period up to July 1994 the SWB should review the cost basis for these charges and report the results to the proposed consultative committee.

The Government should be responsible for determining the tax rates to be levied for pollutants.

Proposal 13.1: Having considered the principles for setting developer charges and the particular issues outlined above, the Tribunal proposes that developer charges should:

- ♦ involve full net cost recovery*
- ♦ reflect variations in the costs of servicing different development areas*
- ♦ result in new developments meeting the costs, but no more, of the services provided through developer charges and/or annual charges*
- ♦ cover infrastructure expenditures which can be clearly linked to the development in question and are able to be forecast reliably*
- ♦ be applied to existing and fringe areas alike*
- ♦ be calculated transparently so that developers can understand and assess the calculated charges.*

Proposal 13.2: The Tribunal endorses, in principle, the net present value approach for calculation of developer charges. A working party comprising representatives of the Tribunal secretariat, the PWD and suppliers in the Sydney, Central Coast and Hunter regions has been directed to examine the application of this approach on a uniform basis.

Recommendation 14.1: The Tribunal recommends that for all new tenancy agreements and where premises are individually metered:

- i the landlord be responsible for paying the access charge*
- ii the tenant be responsible for the usage component of the water bill*

Where landlords ask tenants to pay usage charges, the charge should not exceed that which would apply if charged directly by the water authority.

Recommendation 14.2: The Tribunal recommends that, where properties are not individually metered, the landlord should be responsible for paying the usage charges as well as the access charges.

Recommendation 14.3: The Tribunal recommends that in strata title properties which are not individually metered the Body Corporate should continue to levy its members according to unit entitlement.

Recommendation 14.4: The Tribunal recommends that Section 28 of the Residential Tenancies Act be amended to include as urgent repairs, the repair or, if necessary, replacement of water appliances which are leaking, where the tenants are responsible for payment of usage charges.

Recommendation 15.1: It is recommended that the pensioner rebate be uniform across the major metropolitan water suppliers. Any changes should be phased in over a reasonable period of time.

Recommendation 15.2: Although clearly a decision for the Government, the Tribunal recommends that the Pensioner Rebate Scheme be examined by the Government and consideration be given to better targeting of assistance to those in need, whether pensioner or not, rather than through the present automatic pensioner rebate scheme.

Recommendation 15.3: The Tribunal recommends that the issue of any continuing assistance to pensioner tenants must be addressed by the Government as part of the program of CSOs for the water industry, and should be reviewed along with any overall review of the current program.

Recommendation 15.4: The Tribunal recommends that the water supplier is best placed to cover the costs of any transitional arrangements to protect low income families who are adversely affected by the price reform. This may be necessary in order for the SWB's changes to be acceptable to its customers. A more fundamental extension of, or change to, CSO rebates to any group, such as Additional Family Payment recipients, is a decision for the Government, not the Tribunal.

Proposal 16.1: The Tribunal considers that the most appropriate form of price regulation for water and related services is the $CPI \pm X$ cap.

Proposal 16.2: The Tribunal proposes that the $CPI \pm X$ cap should apply to average revenue per property rather than to prices.

Proposal 16.3: The Tribunal considers that in regulating prices it should:

- ♦ *set an overall limit in the form of a $CPI+X$ cap on revenue*
- ♦ *provide clear recommendations on the direction of change in price structures*
- ♦ *indicate the order of magnitude of price changes which this may involve*
- ♦ *have the option of setting some side-constraints on the maximum impacts on customers. The number of constraints would be limited to as few as possible*
- ♦ *leave the agency with the responsibility for the development and implementation of a complying price strategy*

Proposal 16.4: The primary purpose of the annual determinations would be to ensure compliance with the medium-term price cap, allowing for any substantial change in circumstances.

Proposal 16.5 The medium-term price cap should be implemented through annual price changes based on retrospective inflation rates.

Proposal 16.6: Given existing uncertainties, the Tribunal proposes to review the potential productivity gains in 1995, as well as the outlook for likely capital requirements, before setting caps of four to five years. The Tribunal will need to continue more detailed annual determinations in the interim.

Proposal 16.7: The Tribunal proposes that the medium-term cap should apply on average over the period. A supplier may defer, but not anticipate price increases allowable within the medium-term cap.

Proposal 16.8 The cap on revenue per property should include all service and usage revenue and developer charges (averaged) except for the Sewerage Access Charge and the environmental levy in the Hunter. The cap should be based on forecast consumption, with adjustment factors for variations from forecast, and the average of the number of water only and water and sewerage customers.

Recommendation 17.1: The Tribunal recommends that the Government Pricing Tribunal Act be extended to cover all local authority water supply services, but that declaration of relevant services be deferred for the time being.

Recommendation 17.2: The Tribunal recommends that unless more detailed regulation is shown to be necessary, the Tribunal's involvement should be limited to developing broad principles for pricing. An Office of Water or its equivalent should be given formal responsibility to assist the Tribunal to oversee and monitor the implementation of these broad pricing principles by the local water authorities. The relevant principles are to be found in recommendations in Chapters 9 through 13.

Recommendation 17.3: The Tribunal recommends that Gosford and Wyong Councils explore opportunities for extending the operations of the current Joint Water Supply Scheme, including the establishment of a Central Coast Water Authority, which would cover water and sewerage services.

2 CURRENT PRICE STRUCTURES

2.1 Introduction

Water suppliers in NSW use a wide range of pricing structures which rely to varying degrees on usage charges, access charges and property value-based charges. There are also substantial cross-subsidies between various customer types. For example, commercial users in Sydney pay considerably more than households for an equivalent service.

NSW suppliers, like their counterparts in other states and overseas, have sought to move towards more cost-reflective prices. The extent of these changes varies between different suppliers, with the HWC going furthest along the path of usage pricing⁵.

The trend towards usage pricing for a wide range of government services reflects the emphasis being placed on improving the efficiency and responsiveness of government businesses.

This chapter:

- ♦ outlines the pricing policies of water supply authorities in NSW
- ♦ summarises the price structures of water suppliers overseas and in other states
- ♦ discusses customer views on current price structures and provides estimates of the extent of current cross-subsidies

2.2 Pricing structures in NSW

2.2.1 Hunter Water Corporation

The HWC is widely regarded as an industry leader in pricing policy. In 1982 the then Hunter District Water Board replaced a traditional pricing system which relied heavily on property rates⁶ with a tariff which had a relatively high water consumption charge. A rates component was retained but this has since been phased out for residential customers as part of a continuing program of reform. Subsequent changes have included reductions in non-residential property rates and the introduction of sewerage usage charges for residential and non-residential customers.

The HWC's business plan foreshadows the removal of property rates on non-residential customers over the next three years. This is to be achieved through cost reductions rather than by increasing charges to other customers. The HWC is also planning to reduce the current discount on water-usage

⁵ That is, payments on the basis of the amount of water consumed or effluent discharged.

⁶ That is, a payment based on the value of the property.

charges for large users and to increase sewerage usage charges for non-residential customers to better match the costs of the service.

To date the reforms have yielded benefits through reductions in capital works needs. Substantial expenditures on the water storage and distribution infrastructure have been postponed. Reductions in out-of-doors use and peak summer consumption postponed supplementation of the existing distribution infrastructure.

The key elements in the 1993/94 pricing structure are:

- ♦ standard *residential customers* pay a service availability, or access, charge of \$81 and a usage charge of 74.7 cents/kL for water. For sewerage services, there is a service availability charge of \$126 and a usage charge of \$1.17/kL. Discharges are assessed at 50% of water consumed
- ♦ *non-residential customers* also pay service availability and usage charges for water and sewerage services. Service availability charges are based on meter size. Sewerage-usage charges are 35.3 cents or 21.2 cents/kL, depending on the volume of discharges
- ♦ water users (residential and non-residential) receive a 7 cent discount on the water-usage charge per kL for consumption above 1000 kL.
- ♦ the *non-residential sector* pays \$9 million in rates
- ♦ an environmental levy of \$74.19 per customer partly funds a sewerage backlog program

2.2.2 Sydney Water Board

Before 1993/94 the SWB had made some progress in moving towards usage-related charges, but at a much slower pace than was achieved by the HWC.

By 1992/93, SWB customers paid for all water consumed, but prices for the initial 300kL consumed were well below cost. Following the Tribunal's 1993/94 determination, which was made after the release of the Tribunal's Interim Report, all water used will be priced at 65 cents/kL from 1 January 1994. Property rates for residential customers have not increased for a number of years and 1980 property valuations continue to be used.

The SWB has argued that the low level of cost recovery from the residential sector and the limits placed on increases in residential charges have forced up non-residential charges. Consequently, the reforms to date have been accompanied by an increase in cross-subsidies from non-residential customers. In 1992/93 property rates made up 59% of non-residential charges.

As part of the Tribunal's 1993/94 determination, revenues collected on the basis of property rates on non-residential properties will fall by \$60m.

The key elements in the pricing structures to apply from 1 January 1994 are:

- *residential* customers pay an access charge (\$80 per annum) and usage charge of 65 cents/kL for water. An annual access charge of \$252 will be levied for sewerage services. Approximately 40% of households also pay property rates
- *non-residential* customers pay the same access charge and usage charges for water as residential customers. For sewerage, non-residential customers pay a usage charge of 80 cents/kL for discharges in excess of 500 kL per annum. Access charges are based on meter size. Businesses also pay property rates which can be a substantial component of the bill

As part of the move to increase usage charges for water, the Special Environment Levy (previously \$80 per annum) will be abolished from 1 January 1994.

2.2.3 Gosford and Wyong Councils

Both Councils have an element of pay-for-use for water supply, but there is a 200 kL free water allowance. Gosford residents pay 65 cents/kL for consumption above 200 kL; Wyong customers pay 60 cents/kL. Access charges for non-residential customers are based on meter size.

In Gosford residential sewerage charges are levied primarily on the basis of property values. Residential customers in Wyong pay a flat sewerage charge.

2.2.4 Pricing structures in NSW country towns

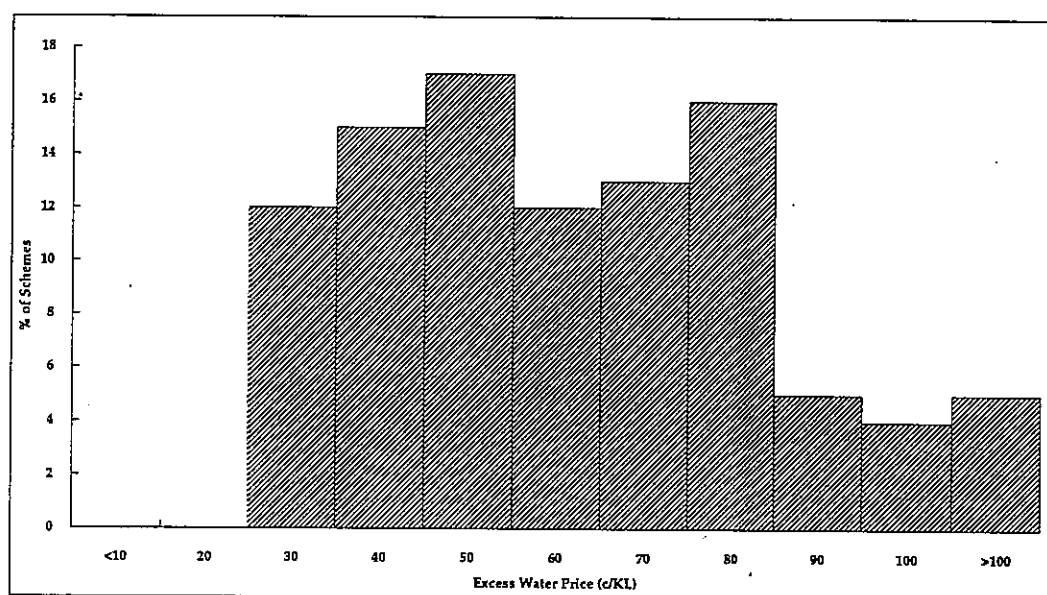
Pricing structures for country town water supply schemes vary considerably, but the general features are:

- Charging systems for water in most towns involve a rate component (based on land value), a water volume allowance, and an excess water charge for water used in excess of the allowance. A minimum charge is usually specified for the rate component and the water allowance may vary according to the rates paid.
- The excess water charge ranges from 20 cents/kL to over \$1/kL. Just over 60% of schemes have excess water charges between 30 and 70 cents/kL. Some 9% of schemes have a two-part tariff with no free water allowance, while around 16% have water allowances in excess of 500 kL per annum. About 45% of schemes have water allowances of between 350 kL and 500 kL.
- Charges for sewerage services are mostly based on property rates. A minimum charge is usually specified. Several councils have adopted separate trade-waste policies.
- Few councils levy separate drainage charges, which are normally met from the councils' general revenue and loan funds.

The Public Works Department (PWD) recommends that rural councils use:

- ♦ for water — a two-part tariff with the capital subsidy⁷ provided by the State Government translated to a reduction in both the availability charge and the per-litre charge for the first 400 kL. A fully commercial charge should be paid for consumption above 400 kL per annum
- ♦ for sewerage — a charge per residential connection which would fully reflect the effect of the government subsidy. The PWD does not recommend usage-related charges for sewerage

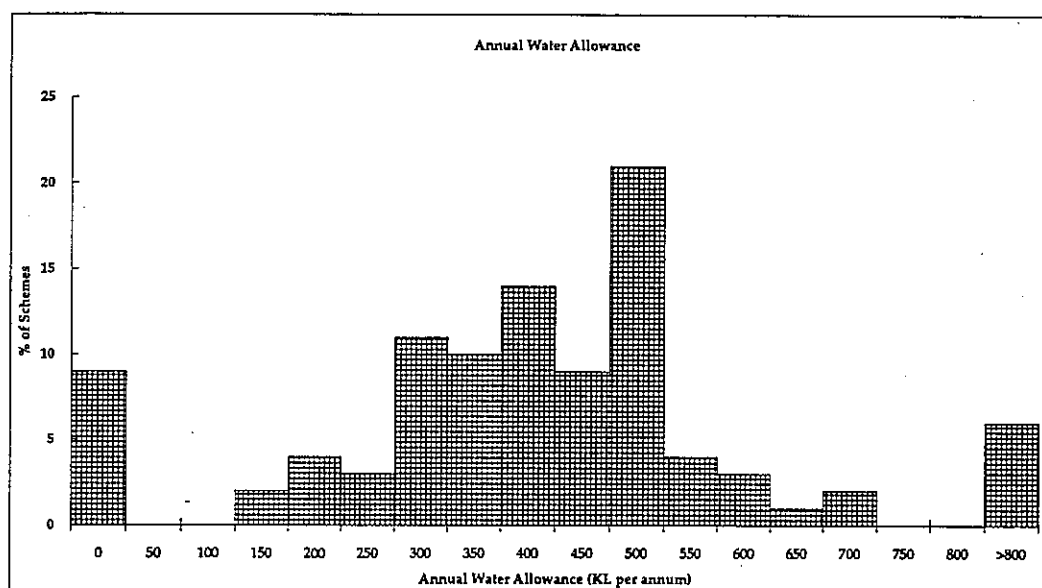
Figure 2.1 Excess Water Prices in Country Towns



Source: PWD.

⁷ The government provides capital grants for up to 50% of the capital costs of approved new works for country town water supply schemes after deducting developer contributions. Councils are eligible for assistance only if annual charges exceed a threshold.

Figure 2.2 Annual Water Allowance



Source: PWD.

2.3 Comparison of pricing structures in Australian Cities

The urban water systems in Australia use a range of water pricing structures, but there is a general movement towards user pays pricing systems and the phasing out of property rates. Melbourne has a two-part tariff, without water allowances, but the access charge is based on property values. Perth, Sydney and Melbourne have inclining block usage charges (prices for additional water consumption increase for higher levels of consumption). Darwin relies solely on usage charges for pricing water supply: there is no access charge. Brisbane has a traditional pricing system: no usage charge, with property rates only. However, it has introduced an optional usage-based charging system.

As the Industry Commission has pointed out,

"the move away from reliance on property charges has been slow. Melbourne Water has taken five years to reduce the share of property-based charges in total revenue from 86% to 69%"⁸.

More rapid changes are underway in Melbourne, although these are driven by the budgetary needs of the Victorian Government. In only two areas of Australia, Darwin and the Hunter, does the usage component for the average domestic customer exceed 50% of the total bill.

All suppliers have consumption charges for non-residential customers.

⁸ Industry Commission, *Water Resources and Waste Water Disposal*, AGPS, Canberra, 1992, pp.34-35.

The Hunter is the only region with a usage charge for residential sewerage services, but Brisbane and Darwin have charges for additional flushing units.

Table 2.1 compares residential water and sewerage bills for 1993/94 for the major urban centres in Australia.

Table 2.1 1993/94 Typical Household Water and Sewerage Bills

City	Average water use kL	Access charges Water \$	Sewer \$	Usage charge \$	Environmental Levy \$	Total water & sewerage bill \$
Major urban authorities						
Adelaide	300	120	216	144	24	502
Brisbane (1)	N.A.	311	167	N.A.	24	502
Brisbane (2)	430	150	167	161	24	501
Darwin	700	N.A.	257	287	N.A.	544
Hobart	Unmetered	175	189	N.A.	N.A.	364
Melbourne	270	115	311	136	N.A.	562
Newcastle	220	81	126	293	74	575
Perth	330	118	345	111	N.A.	574
Sydney	250	89	252	109	40	490
Other						
Gosford	245	210	448	29	N.A.	687
Wyang	230	176	445	18	N.A.	639

NOTES: Water use is assumed constant throughout the financial year.

1 Brisbane charges for a property tax based tariff.

2 Brisbane charges for a property electing to pay metered charges.

Source: SWB

Following the 1993/94 price determinations, a typical SWB customer pays less than residential customers in all the other major urban areas except Hobart. HWC customers pay more than residential customers of other Australian urban areas. Gosford and Wyong customers pay more than the customers of the major urban authorities. However, the following factors must be considered in interpreting these figures.

- *The property rates levied by the SWB.* The estimate for Sydney is for a residence which does not pay a property-based charge. Property-based charges raise an average of \$46 per residential customer, but only 40% of customers pay these charges. If these charges are included, SWB customers pay more than the customers of Adelaide, Brisbane and Hobart, but less than the customers of the other major urban systems.

- ♦ *The varying degrees of cross-subsidy between residential and non-residential customers.* For example, the HWC's cross-subsidy is generally considered to be far smaller than that of Sydney and the other major urban systems.
- ♦ *The position in the asset cycle and the water and effluent treatment standards achieved.* The Gosford and Wyong systems have been modernised and expanded. Substantial capacity exists within the systems and prices in Gosford are projected to fall in real terms over the medium-term. The SWB does not meet the same water and effluent treatment standards as Gosford and Wyong.

Comparisons across countries are even more complex, but data provided by the SWB indicates that residential bills for a range of UK suppliers average A\$406. Only one of the suppliers had an average bill greater than A\$500. A number of possible explanations can be advanced for higher charges in the major urban centres in NSW, but it also should be noted that the UK authorities meet more stringent environmental standards.

2.4 International trends in pricing structures

A 1987 OECD report summarises pricing practices as follows:

"In Australia, Canada, Norway and the United Kingdom, charges for the residential sector of the public water supply are largely based on the value of property, while in continental Europe, Japan, most of Scandinavia and the United States, a combination of fixed and volumetric charges is the general rule...

In all countries, the vast majority of industrial customers have their bills based on a volumetric charge, with or without an additional fixed element or minimum charge. In the commercial sector, however, charging practices vary a great deal."⁹

Davies and Gallagher¹⁰ cite a 1990 survey of water rate structures in the US which revealed that 50% of suppliers used declining block tariffs, 34% used uniform rates and 16% used inclining block tariffs.¹¹ A variety of justifications has been offered for declining block tariffs, ranging from large users having smaller peaks in their usage to the need to promote industrial development.

The OECD noted that inclining block structures are becoming quite common in developing countries¹². Inclining block charges are also used by some water suppliers in Belgium, Greece, Italy, Japan, Portugal, Switzerland, France and Canada. Often the first block is sold at a very low price.

⁹ OECD, *Pricing of Water*, OECD, Paris, 1987, p.39.

¹⁰ Carolyn Davies and David Gallagher, *Demand Management in the Water Industry*, paper prepared for Tribunal, 1993, p.27.

¹¹ A declining block structure means that the charge per kL of water used declines for higher levels of usage. Conversely, under an inclining block charge the usage charge per kL of water increases for higher levels of usage.

¹² OECD, *op. cit.* p.43.

Support for inclining block tariffs rests on favourable equity effects and the view that higher charges on larger users are a particularly effective demand-management tool.

The OECD report considered that:

"Major policy shifts towards marginal cost pricing ... might further popularise progressive tariffs if significant distribution changes would otherwise occur... but the system loses economic efficiency to the extent that significant numbers of consumers consume only within the low-price blocks." ¹³

In the OECD countries, charges for residential sewerage services are usually fixed and additional to the fixed or usage charges for water supply. The presumption is that although it is not feasible to individually measure discharges by meter, users of domestic sewerage services should, on equity and efficiency grounds, bear the costs of provision.

Trade-waste charges which relate wastewater charges for industrial customers to the type and quantity of pollutants are becoming more common. Typically the charges are based on the costs of handling the pollutants. The OECD noted that "numerous instances have been reported of industries responding vigorously to the introduction of trade effluent charges."¹⁴

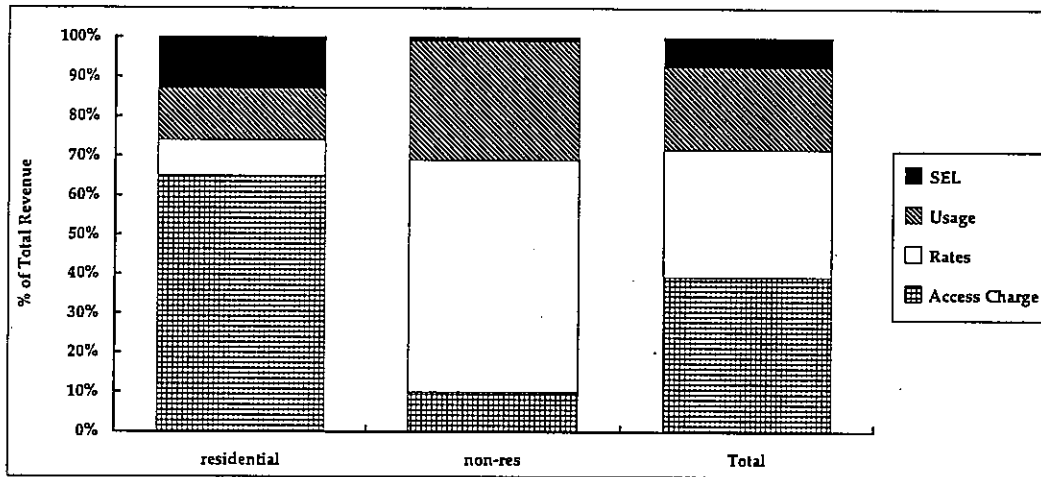
2.5 Composition of revenue

The largest single component of revenue for the SWB is the access charge (39% of total revenue in 1992/93 - see Figure 2.3). The rates component contributes almost one-third of total revenue, and usage charges account for 21% of revenue. However, the pattern for residential customers is markedly different from that for non-residential customers. Residential customers pay around 13% of their bill in usage charges, which account for almost 60% of non-residential bills. Under the 1993/94 charges a typical household consuming 250 kL per annum will pay 33% of its total bill in usage charges.

¹³ *ibid.*, pp.46-47.

¹⁴ *ibid.*, p.72.

Figure 2.3 Composition of SWB Revenue in 1992/1993

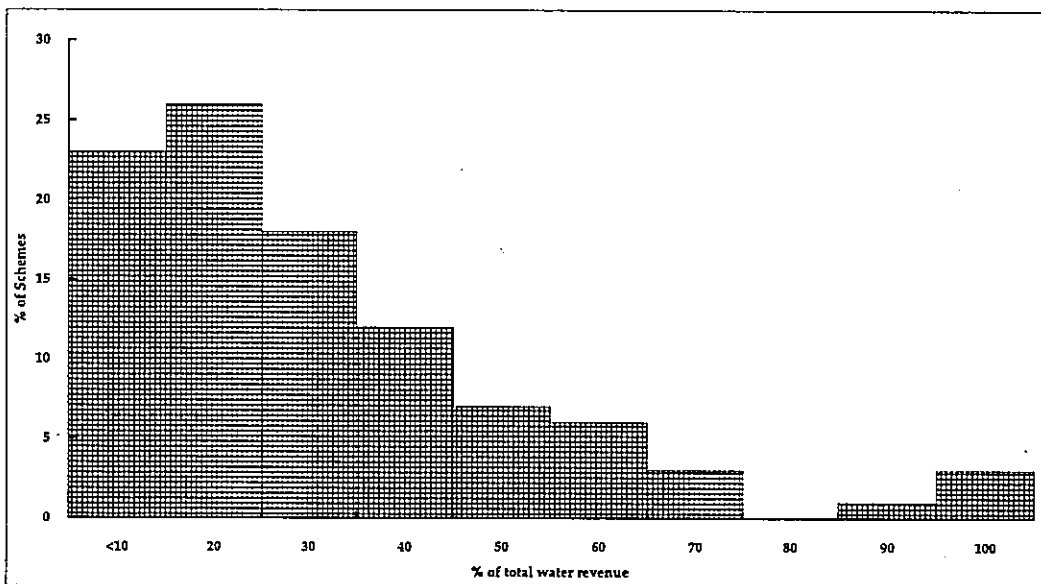


Source: SWB

There is no optimum figure for the ratio of usage to access charges. The proportion of revenue raised from usage charges should vary with factors such as the extent of economies of scale and capacity use. These factors will also vary over time. However, it appears that usage charges have raised a relatively low proportion (21% in 1992/93) of the SWB's revenue. The HWC raises 53% of its revenue from usage charges.

The distribution of revenue collected from usage charges for country town schemes is shown in Figure 2.4. Usage charges account for a relatively small proportion of revenue for most country towns because large free water allowances are commonplace. Almost 50% of schemes raise less than 20% of their revenue from usage charges.

Figure 2.4 Proportion of revenue from usage charges



Source: PWD

2.6 Community attitudes to pricing

Given the proposals for substantial pricing reform in Sydney, the Tribunal has been very concerned to ascertain community attitudes on pricing. Resistance to a pricing system which the community does not understand or support may prevent price restructuring or undermine its benefits. *An information and education program to convince customers of the need for, and benefits of, pricing changes is an essential part of price reform.*

Feedback on community attitudes has been obtained from :

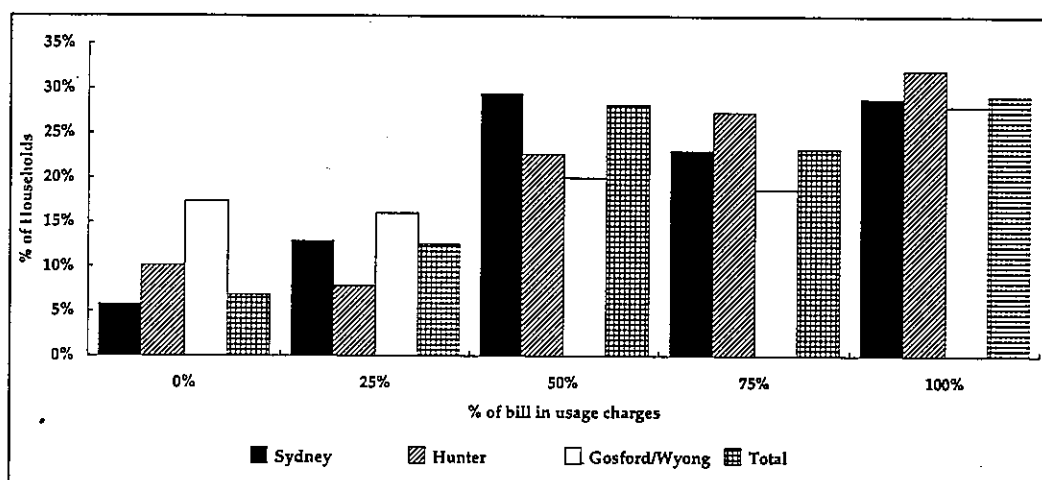
- submissions to the inquiry by the general public and in response to the "Have Your Say in What You Pay" advertisements placed by the Tribunal
- discussion at the four public seminars held by the Tribunal
- a survey of water, electricity and transport usage patterns commissioned by the Tribunal
- attitudinal surveys commissioned previously by the SWB

Each source provided similar feedback. In broad terms, there is strong support for more of the bill to be paid in usage charges. Customers accept the user-pays method as fair and reasonable. An attitudinal survey commissioned by the SWB found that one of the main perceived benefits is that customers can limit their bill by controlling water consumption. Household customers, in particular, complain that the current bill structure does not encourage conservation.

Responses to a survey¹⁵ conducted for the Tribunal indicate that most customers would prefer a pricing system with a strong usage component (see Figure 2.5). Over 75% of households would prefer to pay 50% or more of their bill in usage charges. Interestingly, there was little difference between the preferences of customers in Newcastle, where there is already a large usage component in bills, and those in Sydney. Preferences did not vary greatly between household income groups. Seventy-five percent of customers with household incomes under \$25,000 indicated they would prefer to pay 50% or more of the bill through usage charges.

¹⁵ Reark surveyed 2,000 households in Illawarra, Sydney, Blue Mountains, Gosford, Wyong and Newcastle. The survey collected information on household demographics and use of electricity, water and transport services to enable the Tribunal to better assess the cumulative impacts of price changes. It also asked a range of questions about the quality of the service provided.

Figure 2.5 Customer views on the composition of water bills



Source: Survey conducted by Reark for the GPT

The community is also concerned about environmental impacts. Attitudinal surveys for the SWB showed customers were cynical about the SWB's environmental achievements to date and the use to which the Special Environmental Levy had been put.

There is resistance to increases in bills to cover the costs of higher environmental and water quality standards. The survey evidence suggests that this resistance is not solely the result of concerns about the affordability of the bills, although this is an important factor. Other considerations are:

- ♦ the view that water services are already poor value for money
- ♦ limited knowledge of the efforts currently being made by the SWB
- ♦ the view that the SWB has been inefficient and has wasted money in ineffective responses such as ocean outfalls
- ♦ the view that there are cheaper or better alternative technologies available
- ♦ a negative perception of the use of the SEL.

Not surprisingly, when faced with possible large increases in prices to pay for higher service and environmental standards, most people look for ways of reducing those costs. The surveys conducted for the SWB and the Tribunal suggest that customers give greater priority to reducing beach and river pollution through sewerage and stormwater expenditures than to improving in drinking water quality.

Sixty-five percent of households in the Tribunal's survey were satisfied with the quality of tap water and only 25% indicated that they were willing to pay more for better quality tap water. Almost 40% of households were willing to pay more for sewerage treatment to improve beach and river water quality.

Awareness of the content of the water bill and its method of calculation is limited, at least among SWB customers. Customers are most aware of the SEL component, but the method of calculation of usage charges is least understood. A frequent comment is that because the usage charge is such a small part of the bill there is little incentive to save water. From this it appears that many consumers respond to the *average* amount paid per kL in usage charges rather than to the cost of the last kL of water used (the *marginal* price). Under increasing block usage charges, as previously used by the SWB, there can be a large difference between the average and the marginal usage charges.

2.7 Cross-subsidies

The HWC has indicated that past price reforms substantially reduced the cross-subsidies¹⁶ between the residential and non-residential customers. The \$17 million raised through non-residential property rates in 1992/93 is the major source of the remaining cross-subsidy but this is partially offset by the low sewer usage charge for non-residential customers. The announced determination by the Tribunal for charges in 1993/94 will reduce the revenue from non-residential property rates by around \$8 million.

Gosford and Wyong Councils have indicated that they consider the cross-subsidies between residential and non-residential customers in their regions to be small.

By contrast, cross-subsidies in Sydney are substantial and have not been reduced by the limited reforms introduced to date. Rather, cross-subsidies have tended to increase.

Estimates supplied by the SWB indicate that the cross-subsidy from non-residential customers to residential customers was more than \$300m in 1992/93. This is equivalent to around \$250 per annum for each residential customer. As indicated in Figure 2.6, the level of cross-subsidies has increased by close to 60% over the past three years. The Tribunal's determination of 1993/94 prices is expected to reverse this trend.

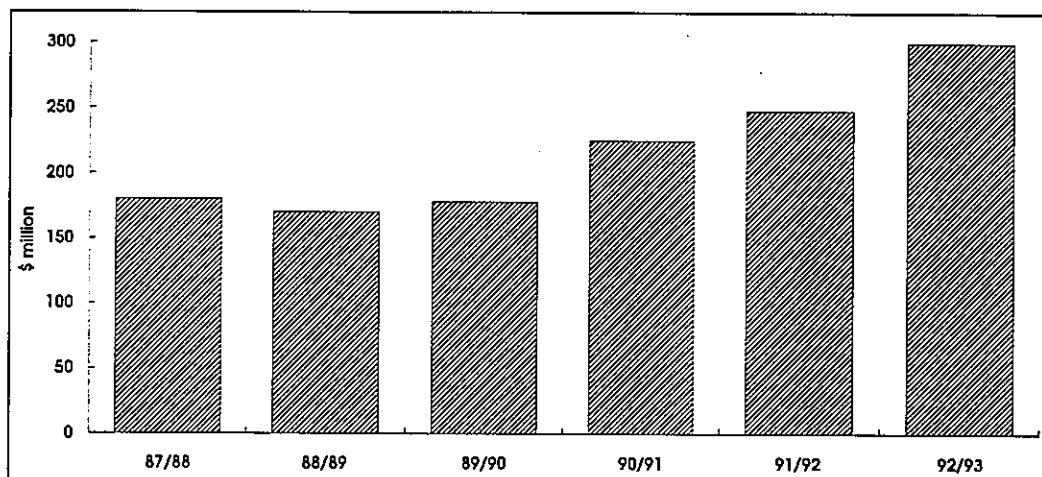
SWB estimates show that within the residential sector there is almost 100% cost recovery, on average, from flats and units. The prime beneficiaries of the cross-subsidies are households living in freestanding houses.

Within the non-residential sector, commercial users are the major contributors to the cross-subsidy. Commercial businesses are often relatively small users

¹⁶ Cross-subsidies occur where some customers pay more for the services used than the cost of providing these services while other customers pay less than the cost of the services they consume; ie where part of the costs of supplying one customer is funded from payments by other customers. Prices are subsidy-free when all goods and services or purchasers pay their own way.

occupying relatively high-valued properties. For such businesses, property rates are a particularly large component of the bill. Property rates are assessed on a different basis for residential customers and are a much smaller component of average residential bills.

Figure 2.6 Cross - Subsidy to residential customers of the SWB



Source: SWB

2.8 Summary

In common with trends elsewhere there has been some progress towards more cost-reflective charges in New South Wales. Most progress has been achieved by the HWC.

The HWC has a simple two-part tariff for residential customers. Property rates have been reduced substantially, although they are still significant, raising \$9 million, or 8% of revenue, in 1993/94.

The SWB has gradually increased the role of usage charges, but the usage charge for most water consumed by households remains well below the marginal cost of supplying water. Property rates raise \$415 million, or almost a third of total revenue, mostly from non-residential customers.

A key issue for Gosford and Wyong, and many country town water schemes, is the substantial free water allowance provided.

One consequence of charges which do not reflect costs is cross-subsidies between various customers, which benefit some customers at the expense of others. The SWB estimates that non-residential customers cross-subsidise residential customers by \$300m per annum. The size of the cross-subsidy has been growing despite limited reforms implemented to date.

There appears to be strong support among customers for an increase in reliance on usage charges in paying for water. However, there is resistance to

increasing bills to pay for environmental and quality improvements. In particular, there was little support for higher charges to pay for improved drinking water quality. Customers gave higher priority to enhancing beach and river water quality.

3 PRICING POLICY OBJECTIVES

3.1 Introduction

Setting prices for water and related services in the absence of competitive markets requires the review of a wide range of issues. These include the institutional framework, environmental standards, the scope for productivity improvements, capital works requirements, dividends and the overall returns earned. A useful starting point is to clarify the objectives of pricing policies.

This chapter:

- reviews the objectives and principles for the setting of prices for public utilities
- canvasses the practical issues associated with the review or restructuring of prices for water services
- summarises the implications, for existing price structures, of the pricing objectives and the practical problems identified

3.2 Principles for pricing policies

3.2.1 Objectives of pricing policies

Various objectives have been pursued through pricing policies for water services. These objectives reflect, in part, the perceptions of the different stakeholders: the government as an agent for the community that owns the utilities, the managers of the utilities, and the customers who purchase the services. Many aspects of these objectives are consistent, but there are also significant points of conflict.

An important factor in the public provision of water and other services is the desire to ensure that these services are available to as wide a group as possible. Reticulated water and sewerage systems have been important contributors to improvements in public health. Subsidised water supplies in country towns have been part of policies to encourage regional development, improve public health and reduce the perceived disadvantages of rural communities. In the Sydney region, the SWB has played an important role in urban planning and environment policy.

An important element in the reform of the operating framework for government trading enterprises (GTEs) has been the clarification of objectives. Recently, increased emphasis has been placed on the establishment of clear commercial objectives for GTEs. This requires that the non-commercial tasks of an enterprise be clearly spelled out in agreements between the government and that enterprise.

The result of multiple objectives can be seen in the continued reliance of the SWB on property value-based rates to generate 32% of revenue in 1992/93 and in substantial cross-subsidies between customer groups.

Resource allocation

Prices are the signal to which consumers respond in deciding what and how much to consume. Prices also prompt producers to decide what and how much to produce and invest. For privately provided goods, the primary role of prices is to allocate resources.

Prices of the services provided by public utilities are also vital for resource allocation. Minimum service requirements may place some constraints on the production decisions of the utilities. In most respects, prices are just as important for public utilities as for competitive markets. They are critical for the best use of the community's resources. If water is under-priced for some users, more water will be consumed and waste discharged. As a consequence, we will have to build dams earlier and fix, or endure, greater environmental problems than would have occurred otherwise. Over-pricing of water services will also have adverse effects. For households, real incomes will be reduced and increased expenditures on water will reduce the consumption of other products. For businesses, costs will be increased, and sales, profits and employment cut.

If society's resources are to be used in the most efficient way, prices should show each customer the costs of consuming water, discharging waste or moving to a particular location. Such costs should include environmental as well as financial imposts. *Cost-reflective pricing can help ensure scarce water resources are not wasted and can promote more efficient investment in water infrastructure.*

Equity objectives

"Equity" has numerous meanings, not all of which are consistent. Most commonly it means fair distribution of income. Alternatively, equity can be defined in terms of access to economic and social opportunities, permitting a minimum standard of living on essential services.

Regional equity is another consideration. In this view, people should not be disadvantaged because of their location. This view of equity can be seen in the allocation of grants between states and the supply and pricing of various services provided by government, such as electricity, transport and water services.

Equity can also refer to the obligations of one generation to another; for example, we should not run down our assets and leave future generations with less productive capacity. Conversely, we should not pay for all assets to be used by future generations.

Finally, equity can encompass the user-pays principle that customers should pay according to the costs of the services provided to them.

Redistribution and access goals have been important elements in water pricing in the past. Property rates are one of the largest taxes on wealth, but they are levied on a very imperfect measure of wealth. Rates do not provide revenue to the governments directly, but in other respects, rates look more like a tax than a price. The SWB raised over \$400m from property-based rates in 1992/93. By comparison, land tax raised \$826m for the NSW Government over the same period.

The desire to ensure household bills are affordable may underpin the current cross-subsidies from business customers to households. A simple view may suggest that household consumers benefit from a cross-subsidy from business. However, as with a tax, people, not businesses, ultimately pay the higher charges on business. Businesses pass on the charges where possible. If charges are not passed on to consumers, the costs are borne by owners through lower profits, by employees through reduced employment or lower earnings, or by landlords through lower rents and property values. To the extent that business charges are reflected in either prices for goods and services or employment, these cross-subsidies may have a regressive impact.

In recent years increasing weight has been placed on the user-pays principle as a relevant equity consideration for pricing policy. It is considered equitable that people pay for the cost of the services they consume¹⁷. This is reflected in the pricing of a wide range of government services such as water pricing in the Hunter over the past ten years.

Efficient pricing¹⁸ is consistent with the user-pays and inter-generational views of equity. However, marginal-cost pricing does not specifically address how embedded costs (largely overhead costs or the costs of sunk shared capital) should be assigned to specific customers or classes of customers.

Financial objectives

Like other enterprises, water authorities depend on pricing systems to reinforce and support corporate objectives.

Management wants to ensure that prices provide a sound financial base for the authority. This is essential if the authority is to continue to provide its services in the future. The government, as the owner of the business, will also be concerned to ensure that the business does not fail, and that it provides an

¹⁷ This is sometimes called "benefit equity".

¹⁸ Generally considered as setting prices equal to marginal costs (that is, costs of supplying an additional unit of water or handling and treating an additional unit of waste).

adequate return on the government's equity in the business. Financial objectives will include measures to ensure:

- adequate cash flows to meet operating costs and fund future investments within the constraints of an appropriate capital structure
- an acceptable return on the authority's investment in capital works
- an adequate return on equity to the owner of the business

Customer objectives

Pricing is part of water authorities' marketing mix and is critical to meeting customers' needs.

The customers' objectives revolve around obtaining a service of the desired quality and reliability at a fair and reasonable price. Implicit in this is the minimisation, or control, of monopoly power. Indeed, the most effective means of meeting the consumers' objectives may be maximisation of competition, although the scope for competition in the water industry may be limited (see Chapter 7).

Broad acceptance of pricing policies by customers is essential. For this, customers need to know the problems faced by the utility and the manner in which the pricing policy tries to address these problems.

Other objectives

Pricing policies can also be assessed against a number of other criteria, most of which are subsidiary to the objectives outlined above. These include:

- water conservation
- ease of understanding by customers
- income stability for the water authorities

In practice these criteria are part of the environmental, customer and financial objectives outlined above.

Reconciliation of pricing objectives

Judgements on priorities and conflicts in pricing objectives are fundamental to a review of prices. The various objectives are usually regarded as being in conflict with each other so that their simultaneous achievement is impossible. However, the extent of conflict between these objectives is often overstated.

Financial objectives are largely consistent with resource allocation goals. The business needs to remain solvent and maintain its assets in order to continue to provide the services required by the community. Efficient prices should include usage prices based on marginal costs, but should also return, over time, the total revenue needed.

Inclusion of environmental factors in pricing structures is also consistent with the best use of society's resources. The difficulty lies in specifying and quantifying these impacts, or in designing structures that permit markets to price these factors.

More substantial conflicts can arise between resource allocation objectives and equity, industrial development, and macro-economic goals. For example, cross-subsidies to encourage particular types of industry or reduce the impacts of prices on measured inflation are unlikely to be consistent with efficient prices. The possible conflicts with equity objectives turn on which aspect of equity is being considered. Efficient prices are unlikely to conflict with concerns about inter-generational or benefit equity. Conflicts are more likely to arise in the case of distributional and access equity.

Priority of equity and efficiency objectives

Several submissions proposed that water pricing should achieve social equity objectives.

The NSW Council of Social Service (NCOSS) has argued that there is a grave danger that the emphasis on efficiency, combined with the search for alternative financing methods to relieve budgetary pressures, would result in equity considerations being marginalised. NCOSS considered that efficient resource allocation should not be the primary or sole objective of pricing policy. Rather, a progressive pricing structure should be used with the primary aim of achieving equitable access to water services.

The Tribunal does not wish to discount in any way the redistributive objectives of government. There is a broad expectation by the community that governments will redistribute incomes and provide benefits with the goal of ensuring minimum standards of living or equitable access to social and economic opportunities.

However, the Tribunal considers that water prices are not the most appropriate instrument for achieving these goals in the long-term. This does not reflect a judgement on the relative importance of the competing objectives. Rather, it reflects a judgement on the relative effectiveness of pricing policies as an instrument for achieving the equity and efficiency objectives.

In the Tribunal's view, progressive taxation or targeted assistance policies are, in general, more efficient policy instruments for distributional objectives than equity-oriented adjustments to pricing policy. In general, adjustments to water prices distort decisions on the use of resources by customers and suppliers more than taxes do. Pricing modifications can adversely affect incentives offered by the water authorities, and hinder efficient performance. For the customer, these modifications tend to confuse the signals sent regarding the value of reducing consumption.

The decline in the system of property rates levied by the SWB highlights the practical difficulties in using pricing policy to achieve equity objectives. Lack of support from the community for such a pricing system, especially during periods of rising land values, led the government to introduce various constraints on property-based charges. These resulted in large distortions and inequities. The property-based charge is now based on 1980 land values, which are increasingly irrelevant, and new properties are exempt, irrespective of their land values.

The process of reform must take distributional impacts into account. Safety nets or adjustments to the phasing of price reform are required to reduce any adverse distributional impacts. Long-term changes in the effective distribution of income (through, say, elimination of property rates) need to be made explicit so that the government can use policy instruments better suited to the desired distributional objectives.

In response to the Interim Report, Gosford Council resolved that

"[Water services] are provided as a service to residents and [Council] rejects the view that a commercial trading enterprise approach should be endorsed ...

Residential properties should not bear any greater proportion of the costs of water and sewerage than at present"¹⁹

The Tribunal does not wish to reduce the standard of service provided to customers. However, it considers that a more commercial framework provides stronger incentives for agencies to provide better services at lower costs. Cost-reflective pricing policies are part of this approach. Better price signals should encourage better resource use which is in the interest of the community as a whole. For example, cross-subsidies to residential customers need to be removed because they raise costs for businesses and may discourage business development and growth.

The Tribunal is concerned about the distributional impacts of price reform, but it considers a rebalancing of the relative burden of charges maybe necessary to better reflect the costs of the services provided. An important element in managing the impacts of such changes is to ensure that the operating environment for the supplier places maximum pressure on the achievement of reductions in costs.

Pricing and environmental issues

Prices which are efficient from society's perspective should take account of environmental impacts. In principle, the cost of the environmental resources consumed should be included alongside the costs of the capital and labour resources used.

¹⁹ Gosford City Council, Response to Interim Report, 1993, pp.1-2.

The Industry Commission has recommended that

"Where quantifiable and attributable, the costs of environmental damage associated with the use of [water and related services] should be reflected in prices"²⁰.

A number of submissions to the Tribunal have made similar recommendations.

As a minimum, the full costs of meeting the standards set for water quality, drainage and effluent discharge standards should be incorporated in the normal price structures. This would incorporate a return on all assets required for achieving these standards, in the same way that a return is expected on other assets. Investments to meet these standards would then satisfy standard financial evaluation criteria. Given the impact of standards on capital works and price structures it is important that standards be set in an open manner which takes into account both the effectiveness of the policy options and the costs of compliance. (This is discussed in detail in Chapter 5).

Of course, even where water supply and discharges meet the required standards, damage to the environment will still occur. The costs of these damages should, in principle, be incorporated in the charges on consumers. In practice, meeting current environmental standards will place substantial upward pressure on bills in the Sydney region. Furthermore, it is widely expected that current standards will be tightened. *The Tribunal is concerned about the impact on affordability or competitiveness if the additional costs of meeting anticipated future standards were to be fully incorporated in prices in the short to medium-term.*

An alternative approach to the direct inclusion of environmental factors in prices is to incorporate values for environmental damages in investment appraisals. In effect this means that investment decisions would be taken as if the correct prices were charged. *Arguably, getting the investment decisions right is the most critical element in reducing future environmental impacts.* This approach would still see prices increase through time to reflect environmental damages. Once the investments were undertaken, the ongoing operating and capital costs would need to be reflected in prices and charges. However, the impact on prices would be more gradual.

For example, incorporation of environmental costs in the appraisal of the next dam for Sydney would delay that dam. Hence, as the capacity of the current dam is approached, usage charges would increase to ration demand. This approach would heighten the role of non-price demand management to reduce the peaks in prices which could otherwise occur.

²⁰ Industry Commission, *Water Resources and Waste Disposal*, AGPS, Canberra, 1992, p.77.

3.2.2 Summary of objectives

The Tribunal considers that efficient resource allocation should be the primary long-term objective of pricing policy. This objective is consistent with the incorporation of environmental costs in pricing structures. Transitional arrangements may be necessary to reduce the effect of changes in pricing structures and levels on those with limited ability to pay. These arrangements could include the phasing-in of changes or rebates or direct transfers. In the long-term, alternative policies, such as direct expenditures, could be used wherever possible to achieve other goals, such as income transfers and industrial development. This could include explicit safety-net programs delivered by the authorities as a community service obligation or by some other arm of government.

3.3 Aspects of pricing in practice

If resources are to be allocated efficiently, it is generally considered that prices should be set to equal marginal costs. Whether prices should be based on short-run or long-run marginal costs is less clear.

The SWB, in its response to the Interim Report, states:

"The decision rules for the type of marginal cost pricing to adopt are relatively clear ...

Where a capacity constraint is being approached long run marginal cost, ... should be used.

Where capacity is not constrained ... short run marginal cost, approximated by average variable cost, is the appropriate level ..."²¹

However, this requires judgements as to when a capacity constraint "is being approached and the timing and cost of the next new dams or treatment works. As the Industry Commission has pointed out that:

"Determining what constitutes efficient pricing of water services raises conceptual and implementation issues ... in practice 'efficient' pricing regimes must inevitably depart from some aspects of text-book rules. A significant element of pragmatism is called for."²²

3.3.1 Estimation of marginal costs

Marginal costs cannot be estimated with certainty. There is a danger of seeking too much precision in both the estimates of marginal costs and the design of pricing policies to reflect marginal costs. However, approximate estimates of marginal costs can be made and simple pricing policies can be designed to broadly reflect the estimates of marginal costs.

²¹ SWB. Comments on Water: An Interim Report, p.2.

²² Industry Commission, *Water Resources and Waste Disposal*, AGPS, Canberra, 1992, p.61.

An analysis of marginal costs was commissioned from Travers Morgan. The Travers Morgan estimates reflect the decision rule discussed above.

Prices should include external costs where appropriate. However, such costs are often difficult to evaluate. The costs of meeting higher environmental standards are being built into the cost structures of water authorities. Pricing according to costs will include the costs of averting a certain level of environmental damage.

3.3.2 Cost recovery and rates of return

Marginal costs include a rate of return on the investment required at the margin. Setting prices on the basis of marginal costs should be consistent with the target rate of return on new investment.

It is widely argued that prices should also provide an adequate return on the existing asset base over time. Advocates of this view include the Industry Commission and Commonwealth and State Treasuries. Overseas governments such as those in the UK and New Zealand have set various forms of rate of return requirements or dividend targets for government-owned utilities. Although there has been strong support for this principle, the measurement of the income flows and the asset base has been subject to considerable debate. (The issues surrounding this are discussed in more detail in Chapter 8).

The overall increase in prices must take into account future funding requirements. Prices should be sufficient to fund reasonable capital works and dividend requirements while maintaining a sustainable debt level. The Tribunal will need to be satisfied that there are adequate processes to ensure that the capital works requirements and the projected dividend payments are reasonable.

3.3.3 Efficient costs and potential productivity gains

Customers should not be asked to pay for inefficiency. However, to immediately set prices on the basis of efficient costs may result in substantial financial losses for the water supplier. Such losses can have adverse effects on morale and incentives. A pragmatic response is to set prices on the basis of a challenging target for productivity gains that will lift performance to best-practice standards over time.

3.3.4 Demand management

Active demand-management policies to reduce the use of water resources have been advocated in a number of submissions. Demand-management programs can involve pricing incentives, subsidies to consumers for investments which reduce water usage or pollution, and consumer education and advice.

Non-price, demand-management policies can correct for prices that do not reflect the costs of the services. In the long-term, more effective incorporation of environmental costs in the prices of water and related services may be the better solution. (The role of demand management is discussed in more detail in Chapter 4.)

3.3.5 Negotiated contracts

A simple price structure which is readily understood by all customers is unlikely to fully reflect the complexity of cost structures. As a result, there will be opportunities for individual contracts to be written between the suppliers and their customers which benefit both parties. Such contracts can reflect the specific nature of the demands of the customers and the costs of the supplier.

The Tribunal does not wish to stand in the way of such contracts. Negotiated agreements are already being used. The SWB has used negotiated effluent improvement programs supported by performance bonds, to reduce the potential short-term impacts of higher trade waste standards and charges on customers' bills. Negotiated agreements could be used to support, and provide offsets for, demand management and greywater re-use programs.

Excessive use of individual contracts by a monopoly supplier could raise concerns that some customers were unfairly advantaged or disadvantaged. It could also reduce the transparency of the pricing process and the level of certainty about future prices.

Steps to limit these disadvantages include :

- ♦ the establishment of clear guidelines for negotiating contracts. It may be possible to include indicative price discounts for factors such as peak load demand reductions and greywater use.
- ♦ a requirement that the Tribunal be assured that prices under negotiated agreements, at least covered the cost of the services provided.

In practice, negotiated contracts should be limited to large customers, at least until the integrity of the process and the cost benefits of contracts are demonstrated.

3.3.6 Public goods

For some services (referred to as "public goods")²³ user-charging policies are difficult to implement. The flood protection aspects of stormwater services have elements of a public good. It is a service which many may benefit from,

²³ Technically, these are services where the consumption by one person does not affect the amount available for consumption by others and where an individual cannot be excluded from the benefits of the service provided.

yet the individual's consumption cannot be identified. Furthermore, the development of new areas increases stormwater run-off and the load on the system, but the impacts may be quite difficult to isolate and quantify. (This is discussed in more detail in Chapter 11, where it is argued that pricing may have a limited role in solving current stormwater problems).

The reticulation of water and sewerage services has been a major factor in improving public health. This is a classic public good in that the benefits flow to all members of the community. It has been argued that this benefit may provide a basis for a discount on charges for a certain minimum level of service. It is questionable whether this argument provides a basis for reductions in ongoing charges for minimum service levels. (This issue is discussed in more detail in Chapter 9).

3.3.7 Urban development and regional pricing

The costs of providing water, and more especially treating and disposing of sewage, vary across areas within a supply region. Ideally, prices should signal these cost differences to customers who could then make decisions on location and the management of their discharges in the light of these costs.

Industrial customers appear to be quite responsive to prices for discharges. Even within an area that has already been developed, industrial users can respond to usage prices, to some degree, by managing the composition and volume of discharges. Different usage charges can encourage a relocation of polluting industries over time. Hence, annual charges for industrial customers can induce desirable responses by varying across regions.

Households have less capacity to reduce waste discharges. Hence, once a development has taken place, prices have relatively little effect on discharges and costs. For residential customers the clearest possible signal must be provided as to the costs of alternative locations at the time developments occur. Arguably, developer charges are more effective at providing these signals than annual charges. They also avoid the inequity that could occur by imposing differential charges on residential customers in existing areas when they have limited capacity to respond.

3.4 Implications for the structure of water prices

The remainder of the report will consider in detail the key issues affecting the level and structure of prices for water supply and related services. As prices are influenced by a broad range of factors, the issues covered in the report are similarly wide-ranging.

In terms of the absolute level of prices, the key issues include:

- ♦ environmental standards and capital works programs (Chapter 5)
- ♦ institutional arrangements (Chapter 6)

- ♦ the scope for efficiency gains (Chapter 7)
- ♦ financial structure and performance (Chapter 8)

The principles for pricing policies outlined above have strong implications for the development of practical pricing structures. Chapters 9-13 examine the medium-term directions for each of the major service types: water supply, waste discharge, trade waste, stormwater and developer charges. In each case a balance must be drawn between the joint goals of equity and efficiency. Chapter 14 discusses the impacts of price changes, while Chapter 15 presents guidelines for the development of government programs to assist disadvantaged groups who may be adversely affected.

Proposal 3.1: The Tribunal supports and intends to pursue the introduction of more cost-reflective pricing structures. The movement toward cost-reflective prices must take into account the practical aspects of pricing and the impacts of these changes. The pace of reform will be influenced by the extent of the efficiency gains achieved, and the efficacy of safety nets put in place by government.

Proposal 3.2: The Tribunal considers that suppliers should be able to negotiate individual contracts with large customers. However, it requires that:

- ♦ *suppliers publish clear guidelines explaining the basis for negotiating individual contracts*
- ♦ *the Tribunal be assured that the prices set under negotiated agreements at least cover the costs of the services supplied.*

The key elements in the move to cost-reflective pricing are:

- ♦ charges for water consisting of an access charge, which may be a function of meter size, and a usage charge which reflects the marginal costs of water (Chapter 9)
- ♦ phasing out property-based charges for non-residential and residential customers. (Chapter 9)
- ♦ sewerage charges for *non-residential* customers consisting of an access charge and a usage charge. The Tribunal is not convinced that usage charges for discharges by *residential* customers yield beneficial results in practice. Hence, it considers that a uniform access charge is an appropriate means of charging for sewerage services. However, it would not wish to prevent an authority introducing or retaining usage charges where it can be shown that the charges reflect the costs of handling the discharges and are based on measures which provide a good proxy for the quantity discharged. (Chapter 10)
- ♦ trade waste charges which reflect the costs of handling the waste. Any tax component should be clearly identified. The tax components should be determined by the government as part of environmental policy and

should reflect environmental damage caused by pollutants which cannot be treated within the sewerage system. (Chapter 12)

- differences in servicing particular areas within a supplier's region should be reflected through transparent developer charges which should take into account future costs and revenues for the water authorities. At present, developer contributions are based on the cost of the assets required to service new areas and do not allow for future operating losses or profits. The Tribunal does not support the alternative of differential annual charges. If applied to existing areas these can impose significant retrospective costs on existing customers where the form and extent of development cannot vary in response to the charges. (Chapter 13)

The basis for these conclusions is outlined in more detail in the chapters below. The main effects will be on the pricing structures for the SWB and Gosford and Wyong Councils. In each case changes to water usage charges for residential customers and to the method of assessing developer charges are required. The phasing out of property-based charges will be an important part of the price reform for the SWB and Gosford. Current trade waste charges in Sydney will need to be reviewed and a component which currently represents a tax must be identified.

Because of the range of changes and their potential impacts, priorities need to be set for the phasing in of these changes. Such priorities should balance assessment of the impacts on behaviour with possible equity consequences of the adjustment path.

Proposal 3.3: The Tribunal proposes that the highest priorities should be given to:

- *aligning usage charges for water to costs*
- *reviewing developer charges*
- *reviewing access charges for large meter sizes and removing of property-based charges for non-residential customers*

In practice, removal of the property-based charges on residential households will be driven by customers' perceptions of the equity of such changes and by management of the impacts on the residential sector. Sewerage usage charges for the residential sector should be given a low priority, because of the doubtful effects of such charges on behaviour and costs.

A number of submissions²⁴ on the Interim Report requested that the Tribunal provide a more detailed or firmer timetable for the implementation of structural reforms. The Tribunal appreciates the concern of those adversely affected by current price structures. However, the Tribunal also wishes to

²⁴ See, for example, submissions from the Chamber of Manufactures and the Property Owners Association of NSW.

ensure that the supply authorities retain, as far as possible, responsibility for determining pricing and marketing strategies.

In balancing these concerns, the Tribunal proposes to:

- ♦ set an overall cap on prices
- ♦ outline pricing principles which it endorses
- ♦ indicate priorities for price reform
- ♦ set a time period in which the Tribunal considers the reforms can be achieved

The SWB's response to the Interim Report indicated its acceptance of the Tribunal's priorities.

The Tribunal expects the supply agencies to develop a medium-term price strategy consistent with this framework. It considers that a more detailed specification of price reforms and timetables may be undesirable because of its adverse impact on incentives and accountabilities.

3.5 Summary of recommendations

Efficient resource allocation should be the primary long-term objective of pricing policy. This objective is consistent with the incorporation of environmental costs in pricing structures. Transitional arrangements may be necessary to reduce the effect of changes in pricing structures and levels on those with limited ability to pay. These arrangements include the phasing in of charges, rebates or direct transfers. Alternative policies, such as direct expenditures, could be used by the government wherever possible to achieve other continuing goals, such as income transfers and industrial development. This could include explicit safety net programs delivered by the authorities as a CSO or by some other arm of government.

More efficient pricing will require prices which are more cost-reflective.

The approach to pricing must be practical. It is not possible to define costs precisely and to mirror these in prices.

The Tribunal recommends that ideally the key elements should be:

- ♦ *a simple and cost-reflective two-part charge for water comprising an access charge and a usage charge*
- ♦ *a similar two-part charge for waste discharges by non-residential customers*
- ♦ *a flat access charge, or possibly a two-part charge, for sewerage services for residential customers*

- ♦ *developer charges which reflect the net costs over time of providing infrastructure to new developments*

The Tribunal supports the use of negotiated contracts with large customers, subject to the provision of guidelines for such contracts and the assurance that the prices set at least cover the costs of services provided.

In reforming the current pricing systems, the Tribunal recommends that the highest priority should be given to:

- ♦ *aligning usage charges for water to costs*
- ♦ *reviewing developer charges*
- ♦ *reviewing access charges for large meter sizes and removing property-based charges for non-residential customers*

4 DEMAND-SIDE MANAGEMENT

4.1 Introduction

Demand-side management (DSM) is an important aspect of providing water, sewerage and drainage services at least cost. In the urban water industry DSM consists the actions the water suppliers take to affect the demand for water, sewerage and drainage services. The need for DSM often arises because price sometimes fails to signal the true economic cost of allocating the resource.

This chapter:

- ♦ outlines the benefits of DSM programs for water suppliers in implementing least-cost planning
- ♦ identifies the benefits to the environment of conserving water
- ♦ identifies DSM options
- ♦ explains the role of pricing in DSM
- ♦ discusses the implementation of DSM programs

4.2 Integrated least-cost planning

Integrated least-cost planning means that water suppliers examine supply-side and demand-side options to meet each customer's requirements for water, sewerage and drainage services. For example, a customer's demand for showers can be met by either adding to water supply capacity or making the existing delivery system more efficient. An example of a DSM is a water supplier's rebating the cost of a new shower rose that provides the same shower while using less water.

Least-cost planning requires a common methodology of evaluating supply-side and demand-side options to provide services at minimum expense. Output must be carefully defined so that supply-side and demand-side options are achieving a comparable service-based result. The difficulty of incorporating external social and environmental costs into the planning process further complicates the process.

Recommendation 4.1: The Tribunal recommends that water suppliers develop a methodology for evaluating least-cost planning options which incorporates both demand-side and supply-side options.

4.3 Environmental concerns

Environmental concerns about overuse of the resource, including the quality of wastewater being returned to the system, can be addressed by reducing

water consumption. DSM can reduce the amount of water consumed, while providing the same or similar standards of service.

For example, the environmental and social costs of a new dam to supply Sydney, the proposed Welcome Reef Dam, could be averted or deferred by a variety of DSM programs designed to reduce water consumption or provide alternative water supply for outside use such as rainwater tanks, greywater use or water recycling. A submission by the Braidwood Environment Group suggests that DSM programs, water recycling, and on-site water harvesting may be more cost effective than building Welcome Reef Dam.

4.4 DSM options

A joint submission to the Tribunal by the Australian Conservation Foundation (ACF) and Australian Consumers Association (ACA) provides a comprehensive list of possible demand-side options. DSM measures could include:

- Economic incentives: price, including seasonal pricing, interruptibility tariffs, access fees, subsidies and financial incentives to purchase water-efficient appliances.
- Structural methods: new or retrofitted water-saving devices such as flow restrictors, dual-flush toilets, aerators, water timers on outside taps and sensor-activated flushing of urinals in commercial buildings.
- Operational methods: restrictions, reuse of effluent, leakage controls and pressure reduction.
- Education and regulation: measures such as indicative bills, education programs and publicity, water-efficiency labelling of water appliances, controls on landscaping methods, mandatory roof catchment tanks and planning controls.

4.5 DSM savings

DSM can save operating and capital costs. Programs which reduce per capita water needed in the system can reduce water treatment and pumping costs.

Deferral of capital costs is where real cost savings can be made. The PWD submission to the Tribunal Working Party, entitled "Water, Wastewater and Stormwater Demand, Engineering and Cost Issues" claims that Gosford and Wyong have saved \$30m by deferring major augmentation works by five to ten years. The HWC's user pays system has enabled it to defer capital works expenditure on a new dam into the next century.

Water supply authorities are also faced with high capital costs to drought-proof the water supply system. DSM programs which enable the system to withstand drought by conserving the resource, may be more cost-effective

than capital expenditure to guarantee supply at unsustainable levels of demand. The cost of larger dams to store water for peak demand in a drought is a cost impost on the system that consumers may not be willing to accept.

DSM programs are more limited in the sewerage and drainage areas. Dual flush toilets will impact on water use rather than sewerage system use. Cutting down on wastewater flow into the sewerage system will not impact on costs in the same way as reducing the amount of sewerage entering the system. Byron Environment Centre's submission to the Tribunal supports alternatives to large scale sewage treatment such as on-site disposal of sewage by, for example, aerobic wastewater treatment systems. Using greywater as a substitute for potable water for flushing and garden watering is another water conservation option suggested in the joint submission by the ACF and the ACA. Another example of where DSM is a practical alternative is in the use of greywater for golf courses, bowling clubs and nurseries.

In their submission, the Nature Conservation Council of NSW claims that the introduction of average available "in the shop now" technology would result in nearly a 40% reduction in internal domestic water use.

Recommendation 4.2: The Tribunal recommends that all water suppliers covered by this Review explore and institute demand-side management programs where cost-effective.

4.6 Pricing and DSM

So that non-price, demand-side management will not be counter-productive, the first priority of water suppliers should be to set prices based on economic efficiency principles.

In the past, attempts have been made to correct the mis-allocation of water resources using non-price DSM. Because this mis-allocation of resources was caused mainly by a non usage-based pricing system, rife with major cross-subsidies and ignored externalities, these DSM programs usually failed.

Getting prices right is a prerequisite to effective DSM. For example, up until the current 1993/94 price determination, there was little incentive for Sydney consumers to install water-efficient appliances. Non-price DSM, such as education programs to encourage water conservation, may be ineffective when the pricing system incorrectly signals that increased water use is relatively costless.

DSM is required primarily because the market has failed to show the true cost of providing the service. This has led to inefficiencies of production and allocation. Once prices are set to reflect identifiable economic costs, DSM will have a role to play in helping to correct any continuing market failure, which may be caused by inflexibilities in the pricing system that cannot practically

be removed. In this way, pricing can also be used as a demand-management tool to alter consumption, to conserve water, and to defer the cost of new dams. DSM options may include both price and non-price tools.

Some observers have questioned whether non-price tools have a role in DSM, if prices in the water industry reflect all costs. In practice, it is unlikely that all costs would be known and even less likely that consumers would be able to respond freely to those price signals. It may not be possible to build the required flexibility into the pricing system. Therefore a central part of all DSM programs will be non-price options. The Nature Conservation Council of NSW, in its submission on the Interim Report, supports non-price DSM which it considers to be more effective. Whether non-price measures can be as effective as price in allocating scarce resources depends on what types of market failure are present.

4.7 Barriers to DSM

The implementation of DSM programs to conserve water is faced with many barriers, including imperfect capital markets, restrictive regulations and inadequate information. The ACF and ACA submission provides a detailed discussion of some of these barriers, for example, local government attitudes to greywater re-use and rainwater tanks.

4.7.1 Imperfect capital markets

Consumers seldom have the same access to capital as water suppliers, so end-use efficiency measures such as water efficient dishwashers and dual-flush cisterns will be adopted relatively slowly, compared with supply-side solutions.

Consumers are also more likely to require shorter payback periods for their investments. Whether the higher discount rate for consumer investment in end-use water efficiency is a function of imperfect capital markets or imperfect information is open to debate. Consumers may be unwilling to invest in end-use efficiency simply because they are unaware of the benefits of such an investment. Another view might be that consumers are slow to adopt end-use efficiency measures because many are uneconomic given the current structure of water prices. If consumers are faced with a lack of information on water efficient products, then more active DSM programs which correct this apparent market failure may be justified.

The Nature Conservation Council of NSW argues that it should be mandatory for water efficient appliances to be fitted to all new residential and commercial buildings. While the Tribunal agrees that it is desirable for new buildings to be fitted with water efficient appliances, requiring this may lead to excessive costs being incurred.

Recommendation 4.3: The Tribunal recommends that the Government consider measures to encourage all new residential and commercial buildings to be fitted with water-efficient appliances where economic.

Water suppliers may need to consider rebates to domestic customers, as well as incentive payments and loans to industrial or commercial customers, as legitimate alternatives to supply-side options. Lismore City Council is currently considering a rebate scheme which will assist customers in purchasing water efficient shower roses and dual flush toilets. In some cases it may even be cost-effective for the water supplier to purchase water-efficient equipment for the customer. The Nature Conservation Council of NSW supports this view.

In contrast to US water utilities, Australian water suppliers do not generally offer financial incentives for customers to adopt end-use efficiency measures. The notion of providing financial incentives to customers may be uncomfortably new to water suppliers previously conditioned to education-based DSM.

However, if rebates are cost-effective from the water supplier's perspective, then surely they are consistent with the commercial aims of the water supply business. The administrative costs of implementing a rebate scheme should be included in any measure of cost-effectiveness.

Difficulties arise when the rebate is cost-effective from society's point of view, which will be the case with most DSM that addresses environmental externalities, but is not, in a financial sense, cost-effective for the water supplier. Then the Government may have to decide whether direct CSO funding is appropriate, although it could be argued that DSM to reduce environmental costs is a legitimate activity of a water supply business which is subject to these environmental requirements.

Recommendation 4.4: The Tribunal recommends that water suppliers consider rebate schemes to customers who install water efficient appliances where cost-effective.

4.7.2 Regulations

Local council and State health regulations can often be barriers to the adoption of some DSM strategies. Greywater re-use is effectively banned by local government health regulations. Some councils also object to rainwater tanks on health grounds, although this attitude is slowly changing. One Sydney council is currently considering selling rainwater tanks at cost to encourage their use.

Unless local and State governments are receptive to alternative ways of conserving water, DSM programs will always face implementation barriers. Health safeguards must, of course, be observed, but flexibility in accepting,

for example, greywater re-use, rainwater tanks, and water recycling will be essential to effective DSM implementation.

4.7.3 Community attitudes

Entrenched cultural attitudes to water re-use have been a major barrier to adopting DSM programs. Water recycling is seen by some as being a retrograde step, although community attitudes to water conservation are changing.

4.7.4 Education and information

If consumers are to make decisions about water-use options, they require sound information. Information inadequacy can be minimised by education programs which clearly explain the issues.

As the ACF and ACA point out, education is vital if DSM is to be effective. To gain consumer support and increase end-use efficiency, water suppliers will need to develop educational programs that involve consumers and disseminate the DSM message clearly and in a variety of ways designed to reach all users. The ACF and ACA believe that indicative bills are an important part of the information process.

Options to achieve this include water-efficiency labelling of appliances, clearly explained water bills, and pamphlets. For example, the PWD has distributed over 230,000 Water Wise kits for councils to give to customers. The SWB has an extensive education program of pamphlets, videos and books to provide information on water issues.

Water suppliers distribute information on water conservation with bills, but research has indicated that few consumers take the time to read the pamphlets. This may change once prices better reflect costs and consumers have a financial incentive to be aware of water conservation measures.

Recommendation 4.5: The Tribunal recommends that water suppliers provide customers with bills that clearly explain the bill's components and indicate how customers can reduce their bills by conserving water.

4.8 DSM implementation

4.8.1 Sharing the benefits

DSM is easier to implement if both water supplier and customer benefit directly from the program. Water suppliers could facilitate end-users' investments in water efficiency by providing finance at competitive rates, although they would be reluctant to do so unless they could share in the benefits. Financial assistance would allow residential customers to invest in water-efficient appliances while alleviating pressure on authorities to

augment supply. Assuming the DSM program was cost-efficient, water suppliers could also provide rebates on water-efficient retrofits or even supply water-efficient equipment such as low-flow shower roses free of charge.

Recommendation 4.6: The Tribunal recommends that water suppliers and electricity distributors be encouraged to develop joint energy and water-efficiency programs.

Recommendation 4.7: The Tribunal recommends that water suppliers lead by example in investigating cost-effective ways of reducing water loss in their respective distribution systems.

4.8.2 Funding DSM

If the DSM program is cost-effective for water suppliers, the benefits generated will cover the costs. In this way the DSM program can be self-funded, although issues of the timing of costs and benefits must be addressed. The recommended form of price regulation, as discussed in Chapter 16, proposes a $CPI \pm X$ cap on average revenue per property rather than prices, which will give incentives for water suppliers to undertake DSM programs.

If funding for the DSM program is by cross-subsidy from other parts of the business, equity issues may need to be addressed.

Some DSM programs would be unattractive to the supplier if costs were higher than benefits. However, if the DSM program offered great benefits to the environment or society, a CSO from government or alternative funding would be appropriate.

4.8.3 Current DSM targets

Water suppliers are actively considering DSM options. For example, the SWB aims to reduce 1994/95 per capita water consumption by 5%, with a long-term target of at least 15% reduction by 2011. As previously stated, the HWC has deferred the cost of a new dam into the next century through usage-based pricing. Wyong and Gosford have active DSM strategies.

Once the objectives of demand management are formulated, attention should focus on the tools needed to implement the program. For example, an immediate question is: What does the SWB need to do to reach its target of a 5% reduction in per capita water consumption by 1994/95? Usage-based pricing will have an impact, but non-price programs may still be required.

Water suppliers should be careful about setting water conservation targets. If prices are set on economic efficiency principles, the reduction in water consumption will depend on how consumers value water. In other words, the level of water conservation must be an outcome rather than an end in

itself. Consumer welfare may be reduced by achieving a target at the expense of economic efficiency.

4.9 DSM and marketing

Movement to cost-reflective pricing may require quite large changes, with the objective of providing better incentives for customers to limit their use of water services.

Two essential conditions for success are that:

- ♦ the community understands the reasons for change and is informed of water-saving techniques
- ♦ the supplier demonstrates a commitment to these objectives

DSM can play an essential role in achieving these goals. Price changes must be accompanied by a strong marketing and education program. Because DSM initiatives are core elements of this plan, they need to become part of normal commercial activities.

4.10 Summary of recommendations

All water suppliers covered by this Review should explore and institute demand-side management programs where cost-effective. This will require a methodology to evaluate least-cost planning options which incorporates demand-side and supply-side options.

The Government should consider measures to encourage all new residential and commercial buildings to be fitted with water-efficient appliances, where economic.

Water suppliers and electricity distributors should be encouraged to develop joint energy and water-efficiency programs.

Water suppliers should lead by example in investigating cost-effective ways of reducing water loss in their respective distribution systems.

Water suppliers should provide customers with indicative bills that clearly explain the bill's components and indicate how customers can reduce their bills by conserving water. Water suppliers should consider rebate schemes to customers who install water efficient appliances where cost-effective.

5 ENVIRONMENTAL FACTORS AND CAPITAL WORKS

5.1 Introduction

This chapter discusses factors that may, over the next few years, lead to increased capital expenditure by water suppliers, and the possible effects of increased capital expenditure on customers' bills. Among these factors are environmental standards, customer service standards, and the costs of operating water supply infrastructure.

In general, the higher the level of environmental and service standards chosen, the higher will be costs and bills. These costs will have to be met by existing and future customers. The higher costs of quality must be balanced against the benefits resulting from higher standards.

The Tribunal, in its Interim Report on Water, suggests that the balance between higher standards and higher bills should be set by taking into account customers' willingness to pay the higher bills. As against this, some groups argue in their subsequent submissions to the Tribunal that there are certain standards that should be met, irrespective of customers' willingness to pay. For example, the Coalition of Hawkesbury and Nepean Groups for the Environment (CHANGE) argues:

"We do not believe that environmental considerations are optional. Evidence as to the willingness to pay should be irrelevant. There are certain standards which must be met regardless of whether people really want to pay or not."²⁵

The Nature Conservation Council of NSW argues:

"[The National Water Quality Strategy] places too much reliance on the starting point of community values rather than ecological principles. This approach gives priority to the community's willingness to pay for its 'choice' of benefit rather than acknowledging a duty to pay for the environmental costs that society imposes on the environment."²⁶

The Tribunal understands the issues which have been raised by the environmental organisations, and accepts that in certain circumstances absolute standards will need to apply for unequivocal health and safety reasons. On balance, however, the Tribunal continues to support a "willingness to pay" test for standards. Firstly, an attempt to increase standards too rapidly would simply be unsustainable because of the likelihood of a political reaction to escalating bills. Secondly, there is much that can be done to improve environmental outcomes even if bills remain (on average) at approximately their present level. Some of these possibilities, such as improved institutional arrangements and greater emphasis on usage-related pricing, are discussed in this report. Thirdly, government and the

²⁵ CHANGE. Submission to Tribunal, 1993, p.2.

²⁶ Nature Conservation Council of NSW. Submission to the Tribunal, June 1993, p.2.

environmental movement have a responsibility to ensure that the community is well-informed about environmental issues. Customers will then be able to decide their priorities and willingness to pay for environmental improvements on the basis of a good appreciation of the issues.

This chapter:

- ♦ outlines current environmental and customer service standards
- ♦ examines proposed capital expenditure programs for water suppliers and implications for customers' bills
- ♦ outlines the benefits of improved water quality
- ♦ discusses various options for cost reduction and efficiency improvement
- ♦ indicates how environmental and service standards might be set

5.1.1 Working Party report

As part of its Major Inquiry into Water and Related Services, the Government Pricing Tribunal undertook to gather information on the standards that are relevant to water, wastewater and stormwater services in NSW, how these standards have changed recently, and how they are expected to change in the future. With this aim, the Tribunal established a Working Party²⁷ to provide advice on:

- ♦ current and possible future standards for water, wastewater and stormwater quality of service in the Sydney, Newcastle, Gosford and Wyong areas
- ♦ the types of costs which are likely to be incurred in meeting those standards and the possible implications for customers' bills
- ♦ the community's demand for and willingness to pay increased amounts for enhanced environmental standards

This chapter outlines the main findings in the Working Party's report.²⁸

²⁷ The Working Party included representatives from the Environment Protection Authority of NSW, the Hunter Water Corporation, Public Works Department, Water Board, Australian Conservation Foundation, NSW Treasury, Gosford City Council, Wyong Shire Council, and consultants to the Tribunal from the School of Engineering at the University of NSW.

²⁸ See Report of the Working Party on Water, Wastewater and Stormwater Demand, Engineering and Cost Issues, Discussion Paper No. 3, NSW Government Pricing Tribunal, May 1993.

5.2 Health and environmental objectives, guidelines and benchmarks

5.2.1 General approach to regulation

Regulation of the water industry has tended to become more stringent in recent years because of the increased attention now paid to environmental issues, and also because of advances in scientific knowledge and measurement techniques.

In general, the National Health and Medical Research Council (NHMRC) and the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ)²⁹ issue drinking water guidelines and the NSW Dam Safety Committee administers standards for dam safety. The Environmental Protection Authority (EPA) issues discharge licences for wastewater treatment plants and has issued a manual of good practice which it intends to mandate through the licensing of stormwater systems.

5.2.2 Drinking water quality standards

The NHMRC and AWRC issued guidelines for standards of drinking-water quality in 1980 and 1987. Revised guidelines for 1993 exist in draft form.

The 1987 guidelines began to deal with a number of factors relating to the organic content within water and the related health implications. The 1993 guidelines propose even stricter standards for drinking water quality and will have implications for water supply treatment processes.

Several submissions to the Tribunal's Inquiry have raised the issue of water fluoridation. Practices vary throughout the State: some local councils add fluoride to their water; others provide free fluoride tablets. The SWB and HWC fluoridate their water.

The Tribunal believes that decisions on fluoridation are best made by the community on the basis of expert advice. The cost implications of water fluoridation are marginal, when compared with other issues.

5.2.3 Effluent standards for wastewater

Discharges from wastewater treatment plants are required to meet minimum technology-based performance criteria as well as in-stream water quality goals.

The AWRC has published draft guidelines for effluent management of sewerage systems. Biological secondary treatment at sewage plants near

²⁹ Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) was previously known as the Australian Water Resources Council (AWRC).

shore or in populated areas is recommended. The EPA is investigating whether this recommendation should be applied to the SWB's deep water outfalls.

The National Water Quality Management Strategy also recommends secondary treatment for ocean outfalls. The introduction of this policy would add to customers' bills, but it is not yet clear whether people are willing to pay for these increased treatment standards, and ultimately, cleaner beaches.

5.2.4 In-stream water quality

In-stream water quality depends on the level of nutrients in receiving waters as well as on the quality of discharges flowing into streams.

A total catchment management approach to reducing nutrient run-off may provide the best long-term solution to managing in-stream water quality problems, such as blue-green algae.

The National Water Quality Management Strategy has suggested a number of in-stream water quality benchmarks and has recognised the importance of community consultation as a first step to determining environmental values and developing water quality management programs.

5.2.5 Stormwater

Environmental problems are associated with stormwater because of the greater volume generated over recent years, its inflow into sewers and the consequent overflow of raw sewage.

Importantly, there is a need for co-ordinated management of stormwater catchments, especially in the Sydney and Hunter areas, where drainage is the shared responsibility of water suppliers and local councils.

5.3 Customer service standards

As well as environmental standards, water supply systems are designed to meet a number of criteria concerning the quality of service which is offered to customers. These can be found in a standards of service manual produced by the SWB, and in the HWC's operating licence. The Gosford and Wyong systems are designed to meet criteria established by the NSW Public Works Department and other requirements determined by the councils.

The standards relate such matters as:

- storage capacity and the acceptable level of restrictions
- water pressure, flow rate and continuity of supply
- water for fire fighting

- ♦ response time to problems and complaints
- ♦ mitigation of flooding
- ♦ management of sewer overflows

5.4 Capital expenditure programs

The implementation and maintenance of environmental and customer service standards impose significant costs on water suppliers. Further capital expenditure is necessary to cater for growth and for the rehabilitation or replacement of existing infrastructure. Each of the suppliers is planning substantial capital expenditure over the next few years.

5.4.1 Water supply

The need for an increased level of treatment has arisen because of rising standards and declining raw water quality. In Sydney, water treatment plants will be constructed by privately owned companies under BOO (Build, Own, Operate) arrangements. Treated water will be provided under these contracts from 1996.

Sydney's water supply may need augmentation in the early years of the coming century. There are significant environmental and financial costs associated with the construction of a new dam, and demand management factors should be considered.

Further, the SWB forecasts expenditure of \$241m over the next 10 years to raise the height of Warragamba Dam to improve flood control, and an additional \$152m over the same period for dam safety.

5.4.2 Wastewater

There are two areas of concern where upgrading of sewage treatment processes may be necessary. These are enhanced treatment at ocean disposal plants and nutrient removal at inland plants.

It is likely that increased levels of nutrient removal will be required for sewage treatment plants that discharge into rivers. This is particularly important for the Hawkesbury-Nepean catchment where much of Sydney's growth is expected to occur, and in the light of past algal problems in that river system. It is also possible that the level of treatment from the SWB's deep water ocean outfalls will be upgraded.

Sewage overflows caused by rainwater intrusion into the sewers have become an increasing problem and will require significant expenditure in the Sydney and Hunter areas.

5.4.3 Stormwater

A large program of capital works may be required to reduce the contribution of stormwater-borne pollutants to the degradation of water quality in urban streams and coastal waters.

Improvements in the quality of stormwater and the management of stormwater flows could require significant capital expenditure in the years ahead. These expenditures will be greatest in the Sydney and Newcastle areas.

5.5 The costs of quality

Changes to environmental and service standards will have cost implications for water suppliers and their customers. The effects on customers will depend on:

- ♦ the stringency of existing standards
- ♦ changes in water consumption
- ♦ the price structure
- ♦ efficiency improvements
- ♦ what happens to any cross-subsidy

In this section we analyse the capital expenditure programs submitted to the Tribunal's working party by each of the agencies in early 1993. Particularly in the case of the SWB, these projections have been overtaken by events and they are now most unlikely to be implemented (some possibly more realistic projections are considered in Chapter 8.) Nevertheless, the working party projections are worth considering, because they illustrate the relative importance of the various factors (including higher standards) that will determine bills in future years.

5.5.1 Future capital and operating costs requirements

The SWB projects a major capital expenditure program of up to \$5.3b for the 10 years from 1993/94 to 2002/03. This expenditure was largely for the Clean Waterways program (43% of total), asset renewal (23%), and urban development (22%). Other programs included drinking water quality, dam safety, flood mitigation and improved stormwater standards.

The HWC's forecast total capital expenditure program over the same period was \$605m. Of this, asset renewal (39% of total) and asset amplification associated with urban development (27%) were the major expenditures.

The capital expenditure program for Gosford over the next 10 years was \$119m, mainly for urban development (62% of total) plus drainage works and flood mitigation (32%).

Similarly, Wyong's forecast capital expenditure over the next 10 years of \$114m was mainly for urban development (68% of total). Other expenditures included asset renewal (23%) and flood mitigation (9%).

5.5.2 Operating costs

Higher operating costs would be required to run new system networks and augment infrastructure associated with growth and enhanced standards. For example, improved drinking water quality was expected to increase the SWB's annual operating costs by \$84m from 1995/96 onwards. Full primary wastewater treatment in coastal plants, if introduced, would add \$33m to SWB's annual operating costs. Growth and secondary treatment in coastal sewage treatment plants were expected to add \$9m to the HWC's annual operating costs.

5.5.3 Implications for customers' bills

The need to meet Economic Community (EC) Standards on drinking and bathing water, as well as to improve the quality of customer service has led to a rapid increase in water bills in the United Kingdom. Water prices are expected to increase by some 25% more than prices in general over the period from 1989 to 1994. Concern has been expressed that a similar situation might occur in NSW.

This section examines the effects of alternative standards on customers' bills in Sydney, Newcastle, Gosford and Wyong. Projections should be interpreted with caution, because of the need to make assumptions about future standards, productivity gains and rates of return. The assumptions provide a basis for comparison for changes in bills for different suppliers, in real terms, over a 10 year horizon.

Scenario 1: Meeting present standards

Standards in Sydney are generally lower than elsewhere in NSW. If the SWB were to meet the standards currently being met by other suppliers, its customers' average bills would be 13% higher in real terms than at present.

Scenario 2: Possible higher standards

The SWB will meet the 1987 and 1993 NHMRC drinking water quality guidelines when the new water treatment plants are in operation. A 6% increase in total bills is projected. There will be only a marginal increase in bills for the HWC when their standards are implemented and no increase for Gosford and Wyong, which already achieve these standards.

To achieve proposed higher levels of nutrient removal a projected 6% increase in bills would be required in Sydney, and a 13% increase in Newcastle.

A significant increase in drainage charges is projected to control stormwater flows, especially in the Sydney and Hunter regions.

Further increases in bills could be necessary if other proposed enhancements were introduced. For example, if introduced, secondary treatment of sewage discharged through the SWB's deep water outfalls would add about \$34 per annum to the average residential customer's bill.

The new spillway for Warragamba Dam (\$152m) would add 1% to total bills for the SWB. A similar increase for the HWC is likely as a result of the \$20m projected expenditure on dam safety.

These increases in bills are in addition to those required for Sydney in *Scenario 1*.

Scenario 3: Case study for each agency

This scenario presents standards which each water supplier may have to meet over the next 10 years and the implications for customers' bills. *It must be stressed that the final outcome for bills depends greatly on the assumptions made about rate of return (ROR), the winding down of the cross-subsidy, efficiency gains and cost reductions.*

The assumptions listed below have been chosen by the suppliers, and do not necessarily represent the views of the Tribunal about what may be reasonable in the years ahead. (Further discussion about possible future scenarios can be found in Chapter 8).

- ♦ *SWB*
 - 2% real ROR on existing assets, 6% on new assets
 - reduced cross-subsidy so that residential customers contribute 68% of the SWB's revenue by 2002 (as opposed to 53% at present)
 - cost reductions in the order of \$208m, or 30% of current operating costs, over the next 10 years
- ♦ *HWC*
 - 2.5% real ROR on existing assets, 6% on new assets
 - removal of remaining cross-subsidy
 - service costs per property forecast to decrease by 2% per annum over the next 3 years, and 1% per annum thereafter
- ♦ *Gosford City Council*
 - a notional 2.5% real ROR on existing assets, 6% on new assets
 - efficiency and productivity targets of 2% over the next four years
- ♦ *Wyong Shire Council*
 - a notional 2.5% real ROR on existing assets, 6% on new assets

- productivity increases through workplace reforms

Table 5.1 provides an analysis of changes in average residential bills in the year 2002 (in current dollars), for each supplier, based on the assumptions above.

Table 5.1 Projections of Average Residential Bills in 2002 (1992/93 Dollars)

	SWB \$	HWC \$	Gosford \$	Wyang \$
Current bills	549	565	851	660
Projected average bill in 2002	803	633	617	600
Change in bills mainly due to				
Productivity improvement	-82	-33	-22	-10
Removal of cross-subsidy	+181	nil	nil	nil
Higher water and sewerage standards	+145	+43	nil	nil
Higher stormwater standards	+10	+33	+20	+14
Rate of return target	nil	+25	-92	-13
Maintain existing standards/growth	nil	nil	-140	-51

Indicative outcomes only, based on the case study for each agency.

In this scenario, average domestic bills could potentially increase most rapidly in Sydney, while customers in Gosford and Wyong could face real decreases over the next decade. The table illustrates the fact that higher water and sewerage standards, reduced cross-subsidies, and projected low productivity improvements, comprise a large portion of the projected increase in Sydney.

The Tribunal is concerned that, unless care is taken, customers' bills may escalate rapidly. Careful scrutiny of the desirability of capital expenditure programs, and attention to the need to maximise efficiency gains, are essential if this outcome is to be avoided.

Recommendation 5.1: The Tribunal recommends that major capital expenditure to improve environmental quality not be undertaken without evidence that customers are 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 expenditures in the absence of such information.

Capital expenditure programs are sometimes required to meet standards. Where the public acceptability of a particular standard has been carefully tested (see recommendation 5.2) and the program represents the minimum cost of reaching the standard, there may be no need to test willingness to pay further. Recommendation 5.1 should apply in other circumstances.

5.6 The benefits of water quality

As it is hard to exclude anyone from the enjoyment of many aspects of higher in-stream water quality, consumers will not normally indicate their true willingness to pay for these benefits and a market price cannot be charged.

Water suppliers must therefore use other approaches in deciding whether the benefits of improved water quality exceed the costs.

5.6.1 In-stream water quality

Aspects of in-stream water quality include:

- ♦ protection of aquatic ecosystems from ecological degradation
- ♦ protection of edible fish for consumers
- ♦ promotion of recreational activities
- ♦ possible use of raw water for drinking
- ♦ use of water for agricultural and industrial purposes

Little work has been done in Australia to determine the value which people place on the environment. A possible method of valuation is:

- ♦ define for a body of water the alternative values which a community may wish to protect
- ♦ determine the water quality standards that are consistent with these environmental values and implications for discharges from sewage treatment plants, stormwater and other sources
- ♦ estimate the costs of these various alternative water quality standards, (including opportunity costs of capital)
- ♦ publicise the costs and attempt to ascertain whether the community thinks that the additional benefits of higher water quality justify the costs

5.6.2 Market research and customers' willingness to pay

Market research undertaken by the SWB³⁰ indicates that customers are willing to pay more provided that:

- ♦ they have an understanding of the environmental and other issues involved
- ♦ they know the reasons why the improvements are taking place
- ♦ they can exercise greater control over their bills through user-pays
- ♦ they see something for their money

³⁰ Sydney Water Board (1992), Customers' Environmental Quality Expectations and Willingness to Pay, 24 September.

- ♦ environmental improvements are real and obvious

However, a recent survey³¹ of residents of Sydney, Newcastle, Gosford and Wyong indicates that 55% of respondents would *not* be prepared to pay more than they are currently paying to improve our rivers and beaches. Of those, 42% felt that they were paying a sufficient amount already. In addition to this, 70% of respondents would *not* be prepared to pay more to improve the quality of drinking water. This indicates that, of those willing to pay more for better quality, a majority prefer to do so to improve rivers and beaches, as opposed to improving drinking water quality.

Further research³² supports this impression of public preference for improved environmental quality for rivers and beaches over drinking water quality. In terms of what customers are willing to pay, most participants in this research exercise thought a hypothetical increase of \$300 a year was too much and would prefer to spend \$100 per year.

The economic evaluation of the SWB's drinking water quality program³³ identified the potential benefits from improved drinking water quality as including:

- ♦ reduced risks to health
- ♦ reduced damage to pipes and water-using devices
- ♦ lower system operation and maintenance costs
- ♦ savings in the cost of water treatment by industry and hospitals
- ♦ reduced spending on the alternatives to drinking water, such as sales of bottled water or use of filters

For the Sydney region, the present value of these benefits is estimated to be \$1,858m, exceeding the present value of the costs by \$1,220m. Reduced spending on the alternatives to drinking water quality made up two-thirds of the benefits. (The present value of these benefits was therefore \$400 per person in the Sydney area, implying average annual benefits of \$40 per person per year). Furthermore, the study found that, for improved water quality, households would pay \$54.10 to \$67.40 per annum, while non-residential customers would pay \$804 to \$1,312 per annum. These values were used in a cost-benefit analysis and benefits were found to exceed costs by a ratio of 2.5:1.

It is evident that further work needs to be undertaken to increase our understanding of whether customers are willing to pay higher bills in return

³¹ Reark Research (1993), *Household Survey of Water, Electricity and Public Transport Usage*. February, Survey conducted for the Government Pricing Tribunal.

³² Sydney Water Board (1992), *Residential Qualitative Research*.

³³ Sydney Water Board and Dwyer Leslie Pty Ltd (1991), *Drinking Water Quality, Economic Evaluation*, September.

for increased environmental quality. It is much easier to publicise the costs of environmental improvements than to assess the benefits. Ensuring that the community is well informed about the costs of achieving higher environmental standards is an essential first step. The Government and its agencies can then seek systematic feedback on whether the expenditure is supported. In the end, the Government's decisions on standards will be a matter for judgement and ensuing community support will be an evolving process.

Recommendation 5.2: The Tribunal recommends that Water suppliers investigate the willingness of customers to pay for the most likely capital expenditure programs required to meet proposed standards. This consultation should be on the basis of site-specific information about a range of options. To provide a sound basis for establishing priorities it is necessary to consider the capital program as a whole as well as its component parts.

5.7 Options for cost reduction

This chapter highlights the nature of possible cost increases, as well as the benefits associated with improvements in environmental and service standards. A rise in the level of standards will mean higher costs to customers. However, increases in customers' bills can be minimised by measures which improve the efficiency, and reduce the costs, of water suppliers.

This section examines some options available for efficiency improvements and cost reduction. (These issues are considered in more detail in later chapters).

5.7.1 Institutional reforms

Problems with current institutional arrangements for water include:

- ♦ Some of the suppliers (for example, the SWB) have potentially conflicting commercial and regulatory responsibilities.
- ♦ Responsibility for in-stream water quality is divided between a number of agencies; responsibility for co-ordinating action between these agencies is not clearly specified.
- ♦ There is no provision for catchment-based co-ordination of the management of stormwater.
- ♦ Despite the close relationship between abstraction and discharge, they are licensed by separate organisations.
- ♦ There are no clear rules for determining the release of water from storages for environmental purposes.

Overall, clear responsibility for the co-ordination of activity to improve in-stream water quality will help to ensure that capital is allocated efficiently and that improvement in environmental quality is not unnecessarily costly.

(These issues are discussed further in Chapter 6.)

5.7.2 Economic instruments for pollution control

Increasingly stringent regulation may be necessary if further environmental degradation is to be avoided. However, this may have adverse effects on economic activity and equity by increasing water bills.

This has led to the suggestion that tradeable abstraction and discharge permits would minimise the costs of reducing pollution. Permits would be sold (at market price) by those organisations which could easily reduce their use of water or discharge to rivers, and would be purchased by those organisations which would incur substantial costs, were they to do those things.

The EPA is currently investigating the feasibility and efficiency of load-based licensing programs for controlling pollution levels, with the objective of improving the regulatory process for achieving environmental quality objectives. Charges would be based on the concentration and volume of pollution and should reflect the environment to which it is discharged. In other words, polluters would be given an incentive to reduce pollution.

By sending better signals to polluters, protection of the environment can be achieved at lower cost than by traditional regulation of pollution sources.

5.7.3 Accountability structures and incentives

Efficient organisations will invest efficiently. Experience shows that efficiency is most likely to be achieved if organisations have clear, consistent and unambiguous objectives for which they are held accountable, as well as incentives to achieve these objectives.

An example is the HWC, which has been given the commercial objective of maximising its net worth. This and other aspects of the HWC's operations are specified in the Corporation's operating licence (see Chapter 7).

An environmental audit has been suggested in submissions to the Tribunal. The Australian Water and Wastewater Association and the Australian Conservation Foundation have suggested the development of an environmental accounting approach. This would take account of changes in environmental quality, such as the rate at which natural resources are depleted and renewed. Such a system would ensure that water suppliers were held environmentally accountable.

(Chapter 6 discusses the desirability of having one organisation clearly responsible for monitoring and reporting on water quality.)

5.7.4 Productivity improvements

Improved labour and capital productivity are critical factors in reducing the costs of providing water, or minimising increases. Efficient asset management is also essential if capital is to be used productively and if service costs are to be minimised. Capital investment in new assets should involve consideration of the implications for operations and maintenance requirements.

(Productivity improvements are discussed further in Chapter 7.)

5.7.5 Demand management, water-efficient appliances, the recycling and re-use of water

Efficiency in water use can be encouraged by demand-side management through pricing, public education, investments in water efficiency and public acceptance of grey water.

Water may be used carelessly if the usage component of the price is too low. The SWB and Gosford and Wyong Councils have made significant moves towards usage-related pricing over recent years, but these are not as far-reaching as the HWC's.

Usage-related pricing will encourage the installation of water-efficient appliances such as dual-flush toilets and low-flow shower roses.

Greater use of recycled and grey water may be an alternative to the construction of new capacity sources. The uses of recycled water would include the watering of reserves and golf courses, and effluent re-use on agricultural land. Proposals for investment in recycled water facilities should be subjected to cost-benefit analysis and environmental assessment before implementation.

(Chapter 4 discusses these issues in more detail.)

5.7.6 Total catchment management

Total catchment management is based on awareness of the need to consider the combined implications for water quality of all activities that take place within the catchment. This requires policy co-ordination, especially in Sydney, where many government agencies within each catchment have responsibilities for water quality.

5.7.7 Planning and building controls

Planning and building codes may need to be reviewed by local agencies to ensure that they do not unnecessarily worsen environmental problems or prevent the introduction of water saving technology.

5.7.8 Information and community consultation

There is an urgent need for further information and consultation procedures to bring into better balance the community's expectations about health and environmental standards, the implications for bills, and the community's willingness to pay. The provision of more relevant information by water suppliers in the form of annual reports, customer accounts or in the press, may be the key to successful consultation.

(Information on current pricing structures can be found in Chapter 2.)

5.7.9 The process of setting standards

Much of the discussion in this chapter has focused on identifying alternative environmental and service standards, and determining the subsequent changes in customers' bills following any change in current standards. It is important to examine how new standards might be set.

The monopolistic and regulated nature of the water supply industry has meant that in the past consumers have had limited involvement in setting standards.

The State Government should be responsible for the overall setting of standards. The water suppliers and the Government Pricing Tribunal should be involved in consultation with the environmental regulators to ascertain the implications of proposed standards for bills. Customers should also be involved in the decision-making process. Attention should be paid to informing the public about alternative standards and the costs and benefits associated with each.

The regulators should identify options, and suppliers should estimate the costs of implementing those options. Both groups need to involve customers in the assessment process.

Ideally, a cost-benefit approach to setting standards would be followed. The benefits of higher standards would be identified and if possible valued, and then compared with costs. (Section 5.6.1 examines a possible approach to valuation for in-stream water quality).

Recommendation 5.3: The Tribunal recommends that standards be determined by the State Government following extensive public consultation about the

consequences of choosing alternative standards. A cost-benefit approach should be followed to establish new standards and review old ones.

Once a decision has been taken, the standards would be incorporated into the supplier's operating licence. The Government Pricing Tribunal would ensure that suppliers would generate sufficient revenue, or achieve sufficient savings, to meet service costs required by the new standards. Standards would be fixed for five to eight years, to be followed by review.

Recommendation 5.4: The Tribunal recommends that environmental and customer service standards be defined for five to eight years in operating agreements between water suppliers and their regulators. Standards would be revised before the expiry of the licence period.

Community consultation is also important in selecting projects which water suppliers should undertake to meet the standards. This consultation can best take place on the basis of good, site-specific information about the benefits and costs of a full range of options.

Recommendation 5.5: The Tribunal recommends that the choice of a particular standard of service should be made following public consultation, with information about the consequences of choosing various standards made widely available. The provision of information about the consequences of choosing alternative options and encouragement of a range of views are important first steps in this process.

The Tribunal wishes to avoid a situation where standards are pushed up too far and too fast, and where the resulting increases for bills become unacceptable to the public.

An important question is how to select the relevant group of customers to be consulted regarding standards or a program of capital works to implement them. It can be argued that, particularly for sewerage and drainage, the relevant group is all those living within a catchment. Problems can arise if the relevant group to be considered in determining standards is defined to be less than the population of a catchment. Those living in the upper catchment may not consider the consequences of their actions for downstream communities. Problems can also arise if the relevant group of customers extends over more than one catchment. Residents in small catchments may agree on very high environmental standards in the expectation that the costs of the resulting capital works will be paid by all customers and that they themselves will pay only a small part. To the extent that these arguments have validity, they tend to suggest that sewerage and drainage should be organised (or co-ordinated) on a catchment basis.

5.8 Concluding comments

This chapter has examined the costs, benefits and implications of higher environmental and service standards in the provision of water and related services. Significant amounts of capital expenditure will be required in both the Sydney and Hunter areas to meet proposed higher standards.

Wide public consultation is desirable in deciding standards. Consultation should be undertaken on the basis of sound information about the consequences of choosing alternative standards. Consultation is essential if the public is to be prepared to pay the additional amounts that may be necessary if higher water quality is to be achieved.

Detailed, site-specific work is needed to identify the benefits and costs of alternative standards which, once set, should remain in place over the medium-term.

Public consultation in considering the projects which are needed to meet the higher standards is also important. This should take place at an early stage on the basis of site-specific information about the costs and benefits of a range of projects.

At the same time, water suppliers should attempt to increase productivity and reduce costs to minimise effects on customers. Better incentive and accountability structures, improved institutional arrangements and economic instruments for pollution control will allow this to occur. Demand management is also important if environmental effects and their costs are to be minimised.

5.9 Summary of recommendations

Environmental and customer service standards should be determined by the State Government following extensive public consultation about the consequences of choosing alternative standards. A cost-benefit approach should be followed to establish new standards and review old ones.

As part of this process, water suppliers should, investigate the willingness of customers to pay for the most likely capital expenditure programs required to meet proposed standards. This consultation should be on the basis of site-specific information about a range of options. To provide a sound basis for establishing priorities it is necessary to consider the capital program as a whole, as well as its component parts.

Major capital expenditure to improve environmental quality should not be undertaken without evidence about the willingness of customers to pay for such improvements. Water suppliers should not assume that price increases will be forthcoming automatically, should they decide to go ahead with capital expenditures in the absence of such information. Of course,

information about customer attitudes may be provided in the context of setting standards.

Standards should be defined for five to eight years in operating agreements between water suppliers and their regulators and revised before the expiry of the licence period.

The Government Pricing Tribunal will, in future price determinations, require water suppliers to provide information concerning the willingness of customers to pay for the capital programs which they are proposing. The Tribunal would wish to consider whether customers should be asked to pay for investment projects for which such information was not provided.

6 THE INSTITUTIONAL FRAMEWORK

6.1 Introduction

The current regulatory framework for the water industry is complex, with six Ministers responsible for over 50 Acts. Responsibility for water-related activities is fragmented and accountability is unclear. Only the goodwill of agencies trying to make the system work minimises regulatory inadequacies.

The Government Pricing Tribunal is concerned about the regulatory framework because poor regulation is likely to result in disappointing environmental outcomes and excessive increases in costs and prices. For example, a poor regulatory framework may lead to excessively stringent controls on discharges from sewage treatment plants yet neglect of diffuse-source pollution such as stormwater, because point-source pollution is easier to monitor and control. The consequences, may well be large variations in bills for customers and little improvement of in-stream water quality.

The present situation, of abstraction and discharge being licensed by separate organisations, can give rise to problems. River flow may be insufficient to dilute effluent from sewage treatment plants and stormwater facilities. There may be pressure to improve the quality of sewage treatment and this may be costly to customers. The present lack of clear rules for allocating water to environmental purposes may impose costs on customers and the environment.

The development of an improved regulatory framework is a matter for government. The Tribunal is therefore taking this opportunity to draw its concerns to the attention of the Government and the public, and to consider the advantages and disadvantages of alternative frameworks.

In surveying the current institutional framework for the water industry and canvassing some options for change, this chapter:

- ♦ discusses the legal and administrative framework within which the NSW water industry operates
- ♦ outlines the elements of an improved system of regulation in the water industry
- ♦ provides four options that the Government could consider to improve the current system of regulation

This chapter is concerned principally with the regulation of the water industry in the urban region between Newcastle and Wollongong³⁴. Although similar issues arise for the rest of the State, the Tribunal has not had the opportunity to study them in detail. Some comments and submissions

³⁴ Detailed discussion of the issues outlined in this chapter can be found in the Tribunal's Discussion Paper, *Regulation of the Water Industry in New South Wales*.

made in response to the Interim Report pertain to the situation in rural New South Wales and are noted here for the record.

6.2 Current legal and administrative framework

The legal and administrative framework within which the water industry operates includes the regulation of drinking water, dam safety, in-stream water quality, flood control, land use and customer service standards.

Regulation may be administered through political direction. Alternatively, it may be administered through standards and guidelines and the development of prices and policies to met the standards and guidelines.

6.2.1 Current industry regulation

The water industry is required to undertake commercial and non-commercial responsibilities. Non-commercial responsibilities relate to environmental quality, drinking water quality and the health and safety of the population. The current regulatory and administrative arrangements for water-related activities include:

Standards

The term "standards" is used here to refer to a whole range of measures including objectives, guidelines and licence limits.

The National Health and Medical Research Council and the Agriculture & Resource Management Council of Australia and New Zealand (ARMCANZ) issue drinking water quality guidelines periodically. Water supply authorities are increasingly adopting these guidelines as objectives.

The NSW Dam Safety Committee ensures that the owners of dams adhere to Australian and overseas standards for dam safety.

There is a hierarchy of environmental protection measures. These include ambient goals or objectives regarding in-stream water quality, standards (usually regulatory limits on industries or types of discharges), guidelines (designed to guide industry practice or indicate likely approaches by the regulator to licences), and licences (designed to control activities on specific premises).

Benchmarks for in-stream water quality have been suggested. The national water quality strategy suggests that quality might be determined by taking into account community preferences for environmental values which the community wishes to see established. Relatively few bodies of water are classified under the Clean Waters Act.

The right to abstract water

The *allocation* of water from rivers by rural users and country towns (including the licensing of *abstractions*) is determined by the Department of Water Resources (DWR). In determining allocations the DWR takes account of the economic, social and environmental aspects of proposed water uses.

The Hunter Water Corporation receives water free of charge from the DWR under a licensing agreement. The DWR already licenses abstractions in the Sydney area other than those by the Sydney Water Board. A licensing agreement between the Sydney Water Board and the DWR, is currently being negotiated.

Water needs to be allocated to maintain river flow and in-stream water quality for a number of environmental purposes. These include the maintenance of wetlands, ecosystems, recreational activities and drinking water quality.

The DWR operates a number of multi-purpose storages on rural rivers.

Right to discharge effluent

The *discharge* of effluent into water is licensed by the Environment Protection Agency (EPA). The EPA licenses discharges from public and private facilities and tends to control most of the highly polluting developments such as chemical factories and piggeries.

Diffuse-source pollution (for example, stormwater) may require management systems to be licensed rather than, or in addition to, particular facilities.

Flood plain management

Responsibility for flood plain management is split between the Public Works Department (tidal zone) and the Department of Water Resources.

Land-use planning

There are important links between land-use planning and the regulation of water. The implications for in-stream water quality need to be considered when approving developments.

The Department of Planning makes local, regional and State planning regulations. Local councils initiate and administer local planning controls after the Department and the Minister for Planning have approved them.

There is currently no focus on the cumulative impacts of land use planning and developments, and water abstractions and discharges, nor on water

quality and quantity for whole river systems. Rather than assessing cumulative impacts, existing regulations tend to focus on individual projects.

Operating water supply systems

The Sydney Water Board and Hunter Water Corporation have the statutory obligation to provide water supply and sewerage services and also some stormwater facilities, in their areas of operation. Most stormwater services in Sydney and Newcastle are provided by local councils. Gosford and Wyong Councils provide water supply, sewerage and stormwater services to their areas of operation.

Councils elsewhere in the State provide services similar to those provided by Gosford and Wyong. Some water services are also provided by county councils.

The Department of Water Resources provides water supply and stormwater services in a number of irrigation areas. There is a move to self management of this infrastructure through Irrigation Management Boards made up largely of representatives of the irrigators.

Catchment management

Catchment Management Trusts can provide and control drainage and flood mitigation in areas agreed to by the local community and councils. The only catchment management trusts formed in the Sydney region to date is the Upper Parramatta River Catchment Trust. A catchment management trust for the Hawkesbury-Nepean is currently being implemented.

Other responsibilities

Policy advice to governments on various aspects of the water industry is provided by many organisations including the Sydney Water Board, the Environmental Protection Authority and the Departments of Water Resources, Public Works, and Conservation and Land Management. The Public Works Department also provides policy advice to local government.

Subsidies are provided by the Public Works Department to local government and to the Hunter Water Corporation for the Hunter Fringe Sewerage Scheme.

The Department of Conservation and Land Management (CALM) provides *advice and plans to private landowners* on integrated soil and water conservation practices to prevent land degradation. It oversees catchment management committees and prepares catchment management plans for landcare groups. Some of CALM's activities overlap with those of the DWR (on river management) and the EPA (on effluent disposal guidelines).

The Public Works Department and the Sydney Water Board engage in *construction* of water supply infrastructure.

Co-ordinating bodies

Several bodies have developed to co-ordinate the activities of organisations which are involved in water administration:

- ♦ The Water Resources Council draws together representatives of the main government and community interests in water administration and advises the NSW Government.
- ♦ Total catchment management committees have been established in all major river valleys throughout the State and in a number of smaller or more local catchments. These committees bring together representatives of the relevant State and local government agencies and community representatives.
- ♦ Two inter-governmental agreements (the Murray-Darling Basin Agreement and the Dumaresq-Barwon Rivers Agreement) influence the management of water over much of the State.

6.2.2 Problems with regulation

Problems with the regulation of the water industry have been much discussed by government in recent years, for example, in the Water Management Audit (1984) and the Review of the Audit (1988).

The regulatory framework lacks coherence and is capable of improvement. This is not to negate the important improvements which have been made in recent years. These include the development of total catchment management, establishment of the NSW EPA, the development of a national water policy framework, moves to corporatise operators or parts of operators, the ending of the effective immunity of government authorities from environmental regulation, and moves to develop load-based licensing, tradeable permits and other economic mechanisms as alternatives to traditional regulation.

6.2.3 Assessment criteria

In assessing the strengths and weaknesses of the present water industry regulatory arrangements, various criteria could be considered.

The criteria include:

- ♦ *clarity* in deciding which tasks society assigns operators and regulators. Each organisation should know exactly what it is expected to achieve and how its success or failure will be judged
- ♦ *well co-ordinated* monitoring of regulatory requirements. For example, exemptions of government agencies from regulatory oversight, should be minimised. As far as possible, the same rules should apply to all

- ♦ *strong incentives* for the operators to achieve the tasks which society assigns to them including core functions and non-commercial responsibilities
- ♦ *accountability through* careful consideration of which information should be provided and to whom it should be provided. Operators should be required to report publicly on their compliance with their licence conditions and the extent of their commercial success. There should also be strict reporting requirements for regulators
- ♦ *conflicts of interest* within an organisation should be averted wherever possible. At present the same organisation is often both regulator and operator. It sets the standards which it is required to meet
- ♦ *costs* of regulations should be commensurate with the benefits that are obtained from them. Costs to operators, industry, and the taxpayer (in terms of government expenditure) are relevant

6.2.4 Assessment of the present regulatory arrangements

The regulation of in-stream water quality is unavoidably complex. In-stream water quality depends on the whole range of activities within the catchment (agricultural, industrial, recreational, water, sewerage and drainage). Currently, responsibility for regulating this diverse range of activities is likely to be divided between several organisations and co-ordination problems are inevitable. Furthermore the present arrangements do not rate very highly when considered in terms of the above criteria.

Clarity

The non-commercial obligations of operators are not clearly spelled out in licence agreements. It is seldom clear what the community requires of a particular waterway.

The arrangements for setting health, dam safety, environmental and customer service standards need to be revised to promote consideration by Parliament and the public of whether the benefits from higher standards are worth the costs. If standards are not set in relation to costs, high water bills may result for little or no environmental gain.

Co-ordination

Crucially, at present no organisation can be held fully accountable for monitoring water quality in NSW and for taking action (or co-ordinating the actions of others) when problems arise.

The DWR licenses most abstractions the EPA licenses most point-source discharges, the Sydney Water Board has the capacity to release water into the Hawkesbury-Nepean for environmental purposes.

Opportunities for low-cost water-quality improvements may be missed because they cross jurisdictional boundaries.

There is a substantial overlap of functions (e.g. between DWR, CALM and the EPA). Duplication exists in collecting information on in-stream water quality.

The relatively weak link between the regulation of water and air and land, and fragmented jurisdiction over stormwater, provide further impediments to improvement of in-stream water quality.

Some commentators have suggest that regional total catchment management (TCM) committees are becoming increasingly disillusioned with the fragmented government response to TCM and in particular the treatment of problems by agencies on a single issue basis. The TCM committees would prefer an integrated approach to consultation.

Incentives

The Board of the Hunter Water Corporation has the clear, commercial objective of maximising the value of the business, consistent with meeting the requirements of its licence. The success of the Board in meeting this commercial objective is fairly easy to measure.

The other operators self-impose standards which are set out in corporate plans. There is, however, no clear measure of their commercial success in undertaking these tasks.

An important argument for linking the regulation of abstraction and discharges is that operators can then be provided with a co-ordinated structure of incentives by the regulator. This would make it easier to provide operators with flexibility to choose the best way to achieve high environmental quality (for example in deciding whether to increase river flows or to raise standards for the treatment of discharges from sewage treatment plants.)

Accountability

Accountability in the water industry is weak because of the unclear assignment of roles and poor incentives. As noted earlier, no single organisation can be held responsible for the whole range of activities relating to water quality within the catchment. Responsibilities for monitoring water quality, and for taking and co-ordinating action where problems arise, need to be specified far more clearly than at present. Consideration might also be given to stricter reporting requirements for regulators and operators concerning, for example, breaches in licence conditions.

Where responsibilities are shared (for example, regulators and operators may both need to monitor in-stream water quality) negotiation should take place

to avoid unnecessary duplication and the respective roles should be set out in a published plan or memorandum of understanding.

There is no program of periodic reviews to assess the continuing suitability of the standards which have been set for rivers and the progress that has been made towards implementing the standards.

Conflicts of interest

There are frequent conflicts of interest. The Department of Water Resources, the Sydney Water Board and local councils all combine regulatory and operational functions. For example, as mentioned above, the Sydney Water Board has to make decisions about environmental releases of water which it could otherwise retain in its dams for operational uses.

The Public Works Department provides policy advice to State and local government, subsidises local government water supply programs on behalf of the State government, and constructs such programs. This combination may have led to the construction of inappropriate, costly facilities which could have been afforded by local communities only because of the subsidy.

Conflicts of interest are, in general, undesirable because they impede transparency in decision-making and provide opportunities for pressure by vested interests and for ad hoc political intervention in decision-making.

Cost of regulation

The multiplicity of bodies involved in the regulation of water and land imposes large costs on industry where new developments are being considered.

There is a need to reduce the costs of development by looking at a problem as a whole, rather than at individual development applications. For example, it may be cheaper to change agricultural practices within a catchment than to require high standards of sewage treatment of residential effluent from a particular development.

One way to encourage looking at developments as a whole is the implementation of "one stop shop" arrangements. A single authority (such as a local council) could receive development applications and could, within a fixed period, seek certificates of compliance from the other relevant authorities. This would not preclude negotiations between individual authorities and the developers. The EPA is already committed to improving the integration of its pollution control approvals with development consents. The Protection of the Environment Administration Act requires the EPA to advise the Government on this matter.

There are many arrangements that could be suggested to increase the extent to which the regulatory arrangements meet the above criteria. Some of the possibilities are discussed in Section 6.3.

6.3 Options

6.3.1 Introduction

This section considers four options for restructuring the regulation and operation of the water industry in urban New South Wales, along with their advantages and disadvantages. Each option could be combined with other worthwhile initiatives. Co-operation is needed at State Government level and in individual catchments to implement any of the options successfully. The options differ in the extent to which they rely on co-operation rather than re-arrangement of functions. Table 6.1 summarises the major elements of each of the options.

6.3.2 Option A - separate regulator, manager, and operators

Option A combines in a single organisation the water management functions now carried out by a number of organisations: the Sydney Water Board (SWB), Hunter Water Corporation (HWC), Public Works Department (PWD), Department of Water Resources (DWR), Environmental Protection Agency (EPA), the Department of Conservation and Land Management (CALM), Councils. The main elements of Option A are:

- The EPA (or an independent organisation) would advise on standards for air and in-stream water quality, and for pollution control. Standards would be set by government following consultation with the public and relevant agencies.
- Other non-commercial objectives (security of supply, dam safety, drinking-water quality, employee safety, customer service) would be stated in an operating licence agreement between the agency and its owner.
- A water management agency would be set up to obtain the best possible uses of the State's water resources consistent with the standards set by government. The water manager would be able to take a strategic overview of stormwater issues. The water manager would have no operational responsibilities.
- A number of urban water corporations would deliver services. These operators would continue to own and operate the major water supply infrastructure (such as dams and sewage treatment plants) but would do so subject to the obligations placed on them by their licence agreements.
- Councils would be encouraged to manage land use so that run-off, consumption of water and air emissions were consistent with set standards.

Table 6.1 Options for Changing the Institutional Structure of the NSW Water Industry

	Existing Institutional arrangements	Option A Separate Regulator, Manager and Operators	Option B Combined Regulator and Manager, and separate Operators	Option C Superordinate Regulator subordinate Manager and separate Operators	Option D Improved coordination
Setting standards -air -instream water quality -pollution control	EPA, local govt, DWR SWB, HWC, PWD	Government advised by regulator	Government advised by regulator	Government advised by regulator	Government advised by EPA
Licensing water abstraction	DWR (some)	Manager	Regulator	Manager but subordinate to the regulator on quality	DWR (all)
Licensing water discharge	EPA	Manager	Regulator	Regulator	EPA
Stormwater co-ordination	SWB, HWC, PWD DWR, local govt, CMT	Manager	Regulator	Manager but subordinate to the regulator on quality	EPA or CMT
Operating water supply -urban -rural	SWB, HWC, PWD, local govt, DWR	SWB, HWC, local govt rural water operators	SWB, HWC, local govt rural water operators	SWB, HWC, local govt rural water operators	SWB, HWC, local govt, DWR
Security of water supply	DWR, SWB, PWD, Local Govt	Manager	Regulator	Manager but subordinate to regulator	DWR
Catchment management co-ordination	EPA, DWR, CMT, CALM	Manager	Regulator	Regulator	EPA, CMT
Water policy	DWR, PWD, SWB local govt, MSB	Manager (Office of water)	Office of water	Manager (Office of water)	Water policy council
Landuse planning	DOP, local govt, SWB HWC, MSB	DOP, local govt	DOP, local govt	DOP, local govt	DOP, local govt
Land management	CALM	CALM	CALM	CALM	CALM

Notes

(1) The "Manager" would contain elements of SWB, HWC, PWD, DWR, EPA, and councils.

(2) The "Regulator" would combine aspects of water management and regulation now resident in the DWR, EPA and operators.

Advantages of Option A

Option A has the following *advantages*:

- ♦ Integrated management of water would be possible throughout catchments.
- ♦ Clear roles for all entities, with explicit accountability subject to external audit. In particular, the water manager would be clearly responsible for achieving water quality targets which had been specified by the government on the basis of independent advice.
- ♦ Absence of conflicts of interest if regulatory and operational roles were clearly separated.
- ♦ Overlap and duplication of functions would be reduced. In particular, abstraction and discharge would be controlled by the same organisation.

Disadvantages of Option A

The main disadvantage of Option A is that the formal link between the regulation of air, water and land would be weakened, because the EPA would no longer license water-related discharges.

The water manager would be able to use the preparation of strategic plans to co-ordinate activities which influence in-stream water quality. One difficulty is that councils and government departments may also have strong links with the regulator. Unless great care is taken, this latter organisation may tend to be used as an avenue of appeal by dissatisfied parties. There could be duplication of effort between the regulator, the managers and the operators.

This option is similar in general structure to the institutional arrangements in the United Kingdom where the National Rivers Authority (NRA) is responsible for managing in-stream water quality. The UK is currently considering whether the NRA should be merged with the pollution inspectorate.

6.3.3 Option B - combined regulator/manager, and separate operators

This option combines the roles of advising government on standards and managing water in a single organisation .

This organisation would also be responsible for the environmental regulation of air and would have strong links to the regulation of land. It would be responsible for implementing standards and to achieve the level of water quality demanded by society. This would be done by devising water quality programs, enforcing their implementation, and reporting on the consequences. The combined regulator/manager would have no operational responsibilities.

In addition to the combined regulator and manager, there would be a number of operators. In other respects, Option B is similar to Option A.

Advantages of Option B.

Advantages of Option B include:

- ♦ Integrated management of water possible in all parts of the catchment. Link between the regulation of air, land, and water enhanced.
- ♦ Absence of conflicts of interest if regulatory and operational roles were clearly separated.
- ♦ Overlap and duplication of functions reduced. In particular, abstraction and discharge controlled by one organisation.

Disadvantages of Option B

A possible disadvantage of Option B is that the separate functions of advising on standards and ensuring their achievement would be handled by a single organisation, leading to conflicting organisational objectives. It is a matter for judgement whether these potential problems could be overcome through sufficiently stringent and detailed reporting requirements to Parliament and the public.

It might also be argued that, although Option B may be desirable in principle, implementation would be a large step for which New South Wales is not quite ready. The alternative would be to retain separate organisations to allocate water and to manage water quality, but to institute strong legal and administrative cross-links. These issues are discussed further under Options C and D below.

6.3.4 Option C - superordinate regulator, subordinate manager and separate operators

This option retains separate organisations for licensing abstractions and discharges but seeks to clarify and formalise the relationship between them. The option would work this way:

- ♦ The regulator would set standards for maintaining the quality of air and waters. It would continue to license discharges to air and water.
- ♦ The regulator would also be responsible for co-ordinating the monitoring of water quality, for ensuring that problems were identified and addressed, and for reporting on the results.
- ♦ The environmental standards of the regulator would be implemented by means of licences issued by the management agency. On water quality issues the management agency would be clearly subordinate to the regulator.

- ♦ The management agency would license all abstractions to ensure that in-stream water quality standards were achieved. It would publish a management plan for each river, explaining how the standards were to be achieved.

In other respects this option would be the same as Option A and Option B. This option does not unite the licensing of abstractions and discharges in the same organisation. However, it seeks to develop a consistency of approach through the incorporation of standards in licences for abstraction.

Advantages of Option C

Advantages of Option C include:

- ♦ Co-ordinated (but not integrated) management in all parts of the catchment
- ♦ Enhancement of the link between the regulation of air, land and water
- ♦ Absence of conflicts of interest if regulatory and operational roles can be clearly separated
- ♦ Rationalisation of responsibilities through memoranda of understanding (although important areas of shared responsibility would remain)

Disadvantages of Option C

It could be argued that Option C, although easier to implement, would be less effective than Option B.

6.3.5 Option D - improved co-ordination

This option attempts to improve co-ordination, not by rearranging current functions, but by developing better arrangements for co-operation between agencies.

The option could work this way:

- ♦ A Water Policy Council reporting to the Premier would be responsible for policy development and co-ordination. It would include representatives of the DWR, EPA and major operators and would be chaired by the Cabinet Office.
- ♦ Environmental standards would be set by the Government on the advice of the EPA (or an independent body), which would establish an advisory council of representatives of relevant bodies including the Government Pricing Tribunal, operators, DWR, and Treasury.
- ♦ The EPA would be responsible for quality issues, monitoring, and the setting of standards. The DWR would be responsible for water allocation.

Responsibilities for environmental allocations of water and the interface with land-use planning would be shared by the EPA and the DWR.

- ♦ Catchment-based committees would be set up (perhaps under a Catchment Management Trust or the EPA) to oversee the implementation of policies in catchments, to advise on problems requiring attention and to facilitate co-operation between agencies. They would report independently.
- ♦ Other regulators (assisted, as necessary, by advisory committees) would advise the Government on issues such as drinking water quality and dam safety.
- ♦ Water operators would receive a clear charter regarding their non-commercial responsibilities.
- ♦ Other agencies would receive clear direction from the Water Policy Council regarding policies and standards for water use and water quality.

Advantages of Option D

Advantages of Option D include:

- ♦ Co-ordination at State and catchment levels
- ♦ Maintenance of the link between the regulation of air, land and water
- ♦ Clear roles and responsibilities for operators, regulators and catchment co-ordinators
- ♦ The focus for water quality would be the catchment rather than the drain.

Disadvantages of Option D

This option depends on co-ordination by committee. This is time-consuming and places a considerable burden on those who are involved. It often takes a long time to make decisions, even in response to crises. Important responsibilities such as environmental releases would be shared, with consequent opportunities for buck-passing.

It might be possible to avoid these disadvantages to some extent by specifying the responsibilities of departments in plans or memoranda of understanding. Moreover, an agency in each catchment could be chosen to be the "steward" of water quality. (It need not be the same agency in each catchment.) This agency would have the responsibility and powers to ensure that the co-ordination process worked and that prompt action was taken in response to environmental emergencies.

6.3.6 Comments on the options

There was a good deal of comment about the options outlined above following their presentation in the Tribunal's Interim Report.

The NSW Irrigators' Council argued that the regulator and manager of water quality should be separate organisations. The licensing of discharges to water would become an integral part of water management. The DWR would continue to be the water manager in rural areas. Irrigation areas and districts would, however, be run independently.

Environmental organisations argued for the creation of an Office of Water within the Premier's Department to determine water quality standards. They also argued for the establishment of an Environmental Audit Office to oversee the various environmental regulators.

Other commentators have pointed out that the regulatory system has to take political and social realities in NSW into account. Rather than establishing a completely new system, the emphasis should be placed on make the existing one work better.

The Tribunal accepts that there are many ways in which the regulation of water in New South Wales could be improved. The options listed above by no means exhaust the possibilities. Combinations of elements of the options are also possible. The Tribunal believes, nonetheless, that the following should be included in whatever regulatory model is ultimately adopted:

- Clear separation between operators and regulators or managers. Each operator should enter into a licensing agreement to determine its right to use and control water. Operators should not be able to set their own standards.
- New arrangements for setting standards for in-stream water quality should be developed to encourage the benefits of higher standards to be weighed against the costs. This would provide a forum for community involvement.
- Clear allocation of responsibility and powers for managing water, whether through improved co-ordination, or rearrangement of functions, with emphasis on specifying standards for in-stream water quality.
- Sufficient funding to enable regulators and managers to carry out their responsibilities. Regulators and managers should be able to recover their costs through fees from licensing abstractions and discharges. The cost reflective part would be scrutinised by the GPT. If a pollution tax element which varied with the amount of damage (load-based pricing) was added, this element of revenue should be identified separately and form part of the consolidated revenue of the State.

The Sydney Water Board endorses this recommendation but has noted that the fees payable to regulators should not depend solely on the level of their activities. Fees should have regard to the use being made of natural resources (e.g. water). The HWC noted that if the Corporation is to be required to pay for the activities of a regulator or manager, there should be some guarantee

that the Corporation would benefit from that agency's activities (e.g. by way of catchment management activities that would ultimately lead to enhanced water quality)

Recommendation 6.1: The Tribunal recommends that the Government implement improved legal and administrative arrangements for the regulation of water.

Recommendation 6.2: The Tribunal recommends that the elements of improved legal and administrative arrangements should include:

- ♦ *the development of licence agreements between water operators and their owners, encompassing clearly stated operating standards, the basis of environmental water allocations, and any non-commercial obligations.*
- ♦ *clear separation of regulation and water management from the operation of water supply and sewerage schemes. Operators should have a commercial focus.*
- ♦ *a review of the current arrangements for setting health, dam safety, environmental and customer service standards to define what the community wants from a waterway and to weigh the benefits against the costs.*
- ♦ *assignment of responsibility for monitoring the achievement of water quality standards and taking or co-ordinating action to meet those standards.*
- ♦ *a better focal point for community efforts to improve water quality.*

Recommendation 6.3: The Tribunal recommends that the regulator or manager finance its activities through fees from licensing abstractions or discharges. These fees should in the first instance be cost-reflective, but might also include a pollution tax varying with the amount of the damage (load-based pricing). The cost-reflective part would be scrutinised by the Tribunal. The pollution tax would be identified separately and paid to consolidated revenue.

6.3.7 Accountability

Any of the options would have to be combined with improved arrangements for accountability. Citizens, the regulator and other government agencies would need to know whether standards were being maintained, need to be enforced or should be altered.

Obligations to report are one way to achieve accountability. These obligations could be included in permits, such as :

- ♦ development consents issued by local councils
- ♦ licences issued to water users and operators by the regulator or the manager, whether for abstraction or discharges

Reports need to be available to the public readily and promptly in a standard form (perhaps at local councils). To ensure a common approach, the reporting obligations would need to be set out by one agency, preferably the regulator.

6.4 Other issues

The conflicting roles of the Public Works Department have often been noted. The Department advises and subsidises local authority water and sewerage schemes and also constructs such schemes. Because of government financial restraints, it seems likely that subsidies will be concentrated increasingly on the smallest and most remote communities. The increasing managerial focus of the Department's water supply activities could be formalised by creating an Office of Water along the lines of the Office of Energy. This might initially be located within the Public Works Department but ultimately could exist separately. In the meantime, there would need to be a clear separation between the Office of Water and the construction activities of the Department.

6.5 Conclusion

This chapter has drawn attention to a number of issues concerning the regulation of the water industry in NSW. Three issues stand out: the processes by which standards are set, the importance of separating operational and regulatory responsibilities, and the need for better co-ordination of responsibility for in-stream quality.

The chapter has made a number of suggestions for improvement which may form the basis of further discussion about these important issues. The Tribunal believes that regulatory reform of the water industry is crucial to the long-term efficiency of the industry. It is meaningless to establish efficient pricing signals if the industry has unclear responsibilities and poor accountability due to regulatory inadequacies. Poor regulation is likely to result in disappointing environmental outcomes and excessive increases in costs and prices.

6.6 Summary of recommendations

The Government should consider implementing improved legal and administrative arrangements for the regulation of water following further examination and public discussion of the advantages and disadvantages of the options presented in this chapter.

The Tribunal believes that the essential elements of improved legal and administrative arrangements would include:

- ♦ *the development of licence agreements between water operators and their owners, encompassing clearly stated operating standards, the basis of environmental water allocations, and any non-commercial obligations*
- ♦ *the clear separation of regulation and water management from the operation of water supply and sewerage schemes. Operators should have a commercial focus.*
- ♦ *a review of the current arrangements for setting health, dam safety, environmental and customer service standards to define more clearly what the community wants from a waterway and to weigh the benefits against the costs*
- ♦ *clear assignment of responsibility for monitoring the achievement of water quality standards and co-ordinating the achievement those standards.*
- ♦ *a better focal point for community efforts to improve water quality.*

The regulator or manager could finance its activities through fees from licensing abstractions or discharges. These fees should, in the first instance, be cost-reflective, but might also include a pollution tax varying with the amount of the load-based pricing. The cost-reflective part would be scrutinised by the Tribunal. The pollution tax could be identified separately and paid to consolidated revenue.

7 EFFICIENCY AND COSTS

7.1 Introduction

Water harvesting and its storage, treatment and delivery; wastewater removal and treatment; and stormwater and drainage services are all costly, capital-intensive processes.

In the absence of a competitive market driving cost efficiencies, price regulation has a role to play in creating incentives for water suppliers to cut costs. It is in the long-term interest of customers and suppliers that water services be provided at minimum cost for a given level of service. Under the current pricing structure, water suppliers do not necessarily have the right incentives to improve efficiency.

This chapter:

- ♦ outlines current cost structures of water suppliers
- ♦ reports on the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ)³⁵ Water Industry Performance Review and other cost comparisons of the water suppliers covered by this review
- ♦ identifies the major cost drivers in the industry
- ♦ discusses the need for performance indicators and international benchmarking to act as a discipline on costs in the absence of a competitive market
- ♦ highlights areas where cost reductions are possible

7.2 Costs

7.2.1 Measurement of costs

Costs

Costs can be defined either in terms of average costs, which are derived from total costs, or marginal costs, which are based on the cost of producing one more unit of production.

Average costs

Average costs are easy to measure because they reflect total costs divided by a measure of output. However, providing disaggregated cost information seems to be a problem for water suppliers, who in the past have been

³⁵ The Water Forum sub-group of ARMCANZ was previously known as Australian Water Resources Council (AWRC). References to existing work in this report relate to AWRC.

preoccupied with total revenue requirements, rather than the cost of each activity.

Pricing regimes based on average costs do not identify the marginal costs incurred in producing an additional unit of output. All costs are included in total costs, including capital costs and costs unrelated to output.

Marginal costs

As argued in Chapter 3, the efficient use of resources requires pricing which reflects marginal costs. Ideally, the price for an additional kilolitre of water supplied or wastewater treated would equal the additional costs of supply or treatment.

Unfortunately, estimates of marginal costs can vary substantially. There are many margins for which costs can be estimated. For example, the costs of supplying additional water at different times or seasons of the year will vary, as will the costs of additional water or wastewater to the many different sub-regions within a supply authority. Uncertainty also surrounds issues such as identifying expenditures which are incurred in the supply of additional water and sewerage services. Some environmental works result in part from rising community standards; and are not related to the supply of the marginal unit of water. However, these works may also result from declining standards within existing systems which are caused by increases in water use and discharge as populations increase.

As a result, estimates of marginal costs should be viewed only as a guide to the costs involved. The practical consequence of this is that, if marginal cost pricing is adopted, the goal should be a pricing structure which approximates the estimates of marginal costs rather than attempts to mirror particular estimates of marginal costs.

7.3 Total costs

As with other businesses, total costs comprise many elements. In order to effectively manage the organisation, management must have information on the cost elements by type of cost and business. Such information is essential for decisions on where costs can be reduced and which activities should be expanded or shrunk. Disaggregated information also helps the regulator reach judgements on the potential magnitude of efficiency gains. However, from the customers' point of view, it is the overall level of costs which counts, these are the costs which they are asked to cover through the charges they pay.

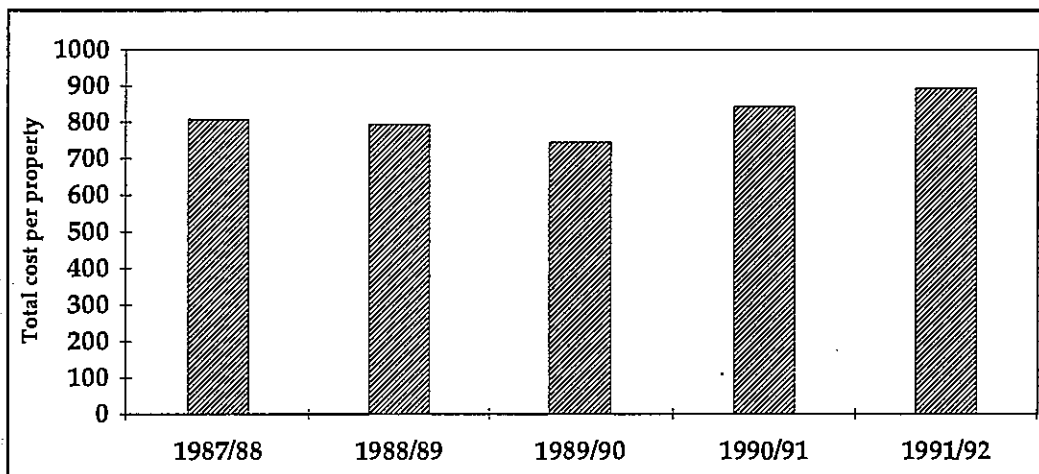
Total costs also provide a measure of how the organisation is performing. One cost element, such as wages, can be reduced at the expense of another, such as contracting or capital costs. Hence, a narrow focus on individual cost

elements can be misleading unless interpreted in the context of changes in total costs.

7.3.1 The Sydney Water Board

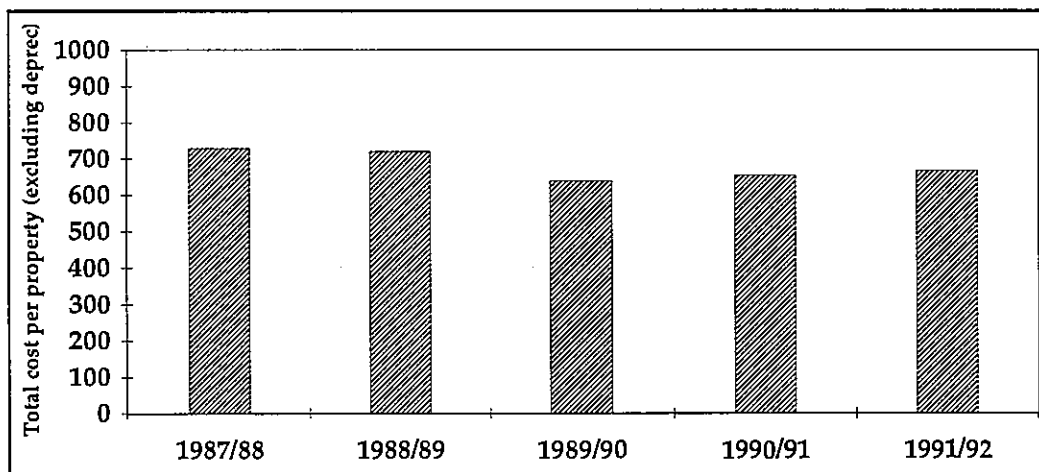
Figure 7.1 shows that the SWB's total costs per property has risen by about 11% in real terms over the past five years (1987/88 to 1991/92). Analysis of disaggregated data in Table A7.1 shows that increases in operating costs were a major contributor to the rise in costs. Another significant increase has been in depreciation charges per property (+190% in the five year period).

Figure 7.1 SWB -total cost per property (1992\$)



Source: Derived from SWB financial statements. A property is defined as a water property.

Figure 7.2 SWB - total cost per property (excluding depreciation) (1992\$)



Source: Derived from SWB financial statements. A property is defined as a water property.

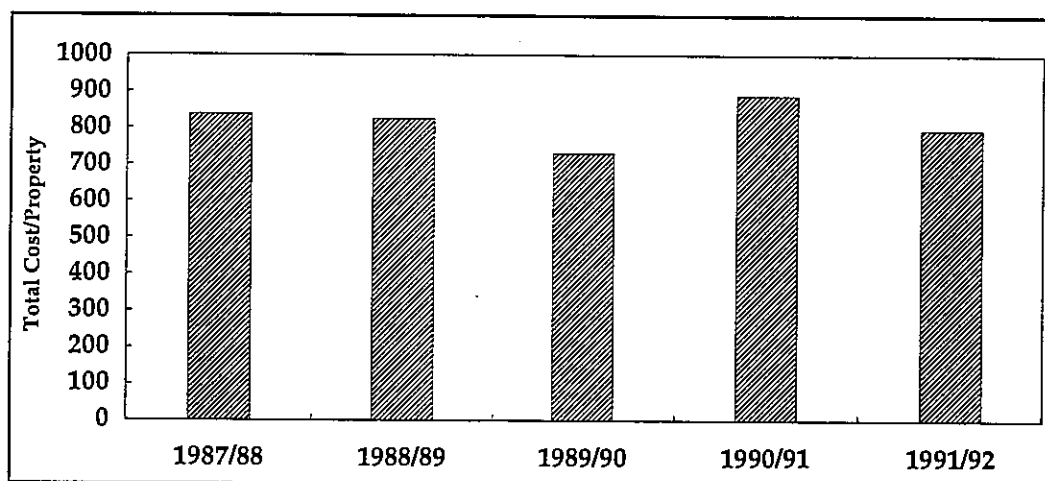
To give a more meaningful picture of cost efficiency, Figure 7.2 shows the SWB's total costs per property after depreciation has been excluded. This

negates the effects of the revaluation of assets. However, even after the effect of depreciation has been excluded, the SWB's total costs per property show a significant rise in real terms over the past three years, although total costs per property remain below the 1987/88 level.

7.3.2 The Hunter Water Corporation

The HWC's cost-efficiency performance³⁶ has been more creditable over the past few years, although the reduction in total costs has been quite modest.

Figure 7.3 HWC - total cost per property (1992\$)



Source: Derived from HWC financial statements. A property is defined as a water property.

As shown in Figure 7.3, the HWC's total costs per property decreased by about 1% per annum in real terms over the five year period (1987/88 to 1991/92). An exception to the decreasing trend was 1990/91 when depreciation charges increased in response to higher asset valuations.

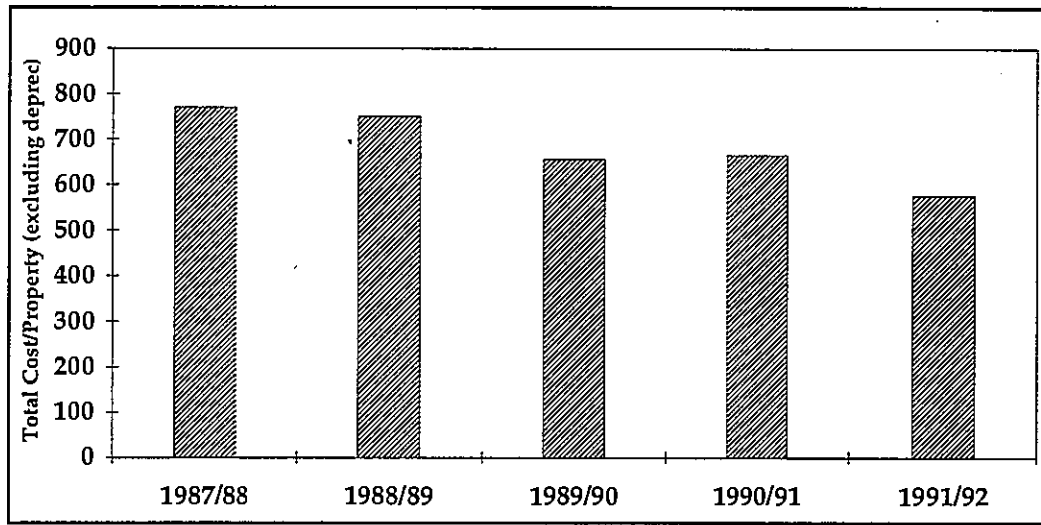
Analysis of disaggregated cost information provided by the HWC shows that the reduction in total costs per property in 1991/92 was due mainly to a decrease in employee provisions, which were almost halved from the previous year. This was due to changes in the assumptions underlying the actuarial reassessment of superannuation liability. Financing charges have also declined steadily over the five year period. However, that trend may slow in the next few years as interest rates level out, assuming debt levels are not further reduced.

Partially offsetting the reductions in costs has been an increase in depreciation. Figure 7.4 shows trends in the HWC's total costs per property

³⁶ Cost efficiency is measured by total costs per water property served. Alternative measures of output such as per head of population, megalitres supplied, or some measure of quality of service supplied could give a different indication.

after depreciation has been excluded. The decrease in total costs using this measure shows a more pronounced decline in costs (minus 25%) over the past five years when compared to total costs with depreciation included (minus 5%). Figure 7.4 further indicates how sensitive total costs in the water industry have been to the way depreciation has been calculated over the past few years.

Figure 7.4 HWC - total cost per property (1992\$) (excluding depreciation)



Source: Derived from HWC financial statements. A property is defined as a water property.

7.4 Capital costs

The cost of capital is significant in a capital intensive industry such as urban water supply. Based on information supplied to the Tribunal by the water suppliers, depreciation charges alone account for about 25% of total SWB costs and about 27% of the HWC's total costs in 1991/92. Financing charges accounted for about 19% of the SWB's total costs and 20% of the HWC's total costs. With the revaluation of water assets over the past few years, depreciation costs have risen significantly (See Tables A7.1 and A7.3 in the appendix to chapter 7).

Capital expenditure to address environmental problems has also been a significant source of costs in the water industry. For example, the SWB's capital works expenditure for environmental protection in 1991/92 was about \$170m out of a total capital works program of \$496m.

7.5 Operating costs

Comparison of operating cost trends can indicate how efficient water suppliers are in areas which are essentially more controllable than other elements of total costs, (such as capital costs) in the short run.

Operating costs in the water industry are significant. They cover such items as employment costs and the costs of power, materials and contractors³⁷. In 1991/92 the SWB's total operating and service costs accounted for almost half of total expenditure. Similarly, about 45% of the HWC's total costs were operating and service costs.

Wages and salaries tend to be a large operating cost in the water industry. Contracting out has been seen as a way of reducing direct labour costs and a way of increasing cost efficiency in the industry. As is shown later in this chapter, it would appear that contracting out is not making the expected impact on cost savings in the water industry. In general, direct labour costs have not fallen. This suggests either that potential savings have not been realised, or that savings have been used to increase expenditure elsewhere.

In the short run, operating costs represent a large percentage of controllable costs and are, therefore, the area where the most impact can be felt from increased productive efficiency. However, past investment decisions may have been made for a variety of reasons other than economic reasons, eg social objectives, engineering requirements, political objectives, and this may lead to a water supplier's being tied to a high operating cost plant. An AWRC³⁸ study of cost sensitivities in the water industry indicates that large gains can be made by lowering the cost of capital over time through lower asset-replacement costs. Increasing environmental standards may require increased capital works expenditure, especially on water and wastewater treatment plants.

7.5.1 Sydney Water Board

As can be seen from Table 7.1, the SWB's real operating costs per property increased by about 3.5% per annum on average over the five year period. One factor which prevented a larger rise in costs was a reduction in employee provisions caused by a change in actuarial assessment of superannuation liability³⁹. When employee provisions are excluded from operating costs per property, Table 7.1 shows that the SWB's operating costs per property have increased in real terms by about 23% over the five year period. More

³⁷ The SWB also capitalises labour, contracting and material costs associated with the capital program.

³⁸ Australian Water Resources Council, *Cost Sensitivity in Australia's Urban Water Industry*, November 1989.

³⁹ Employee provisions include provision for superannuation, annual leave and long service leave liabilities. The reduced employee provisions in 1990/91 and 1991/92 were caused by a change in actuarial assessment of superannuation liability.

importantly, these costs have increased significantly over the past two years, which may indicate that the SWB has been unable to implement effective operating-cost efficiency measures.

Table A7.3, located in the appendix to chapter 7, shows that the SWB's labour cost per employee (excluding provisions) increased by 34% in real terms (1992\$) from about \$36,300 in 1987/88 to about \$44,500 in 1991/92. It seems that as the SWB reduced its staff, its average wage cost increased. This could be due to a change in the mix of staff through reductions in wages employees, rather than reductions in salaried staff and the introduction of the Senior Executive Service (SES). *The Tribunal is concerned about the possible implications of this trend for prices.*

The SWB has argued that the increase in operating costs is caused by the demands of increased quality. However, a significant increase in costs in 1991/92 was the cost of developing long-term strategies (\$12m) which essentially is a one-off cost which will not affect operating costs in the long run. Operating costs also seem to be rising because of increased maintenance on an ageing system as in, for example, the additional costs of water main breaks.

Table 7.1 SWB - trends in operating costs per property

	Operating cost per property		Operating cost per property (excluding provisions)	
	\$	% increase	\$	% increase
1987/88	412		337	
1988/89	487	18.2	355	5.3
1989/90	406	-16.6	312	-12.1
1990/91	444	9.4	362	16.0
1991/92	473	6.5	414	14.4

Source: Derived from SWB financial statements. A property is defined as a water property.

In 1991/92, SWB operating costs increased by \$83m. The SWB has supplied additional information on the break-down of these costs which indicates that most of the increase relates to areas such as the enhanced program for sewerage plants, improved water quality and reduced sewer infiltration and sludge removal. The SWB has pointed to environmental quality costs as being a significant driver in the SWB's operating cost escalation.

The Tribunal remains concerned about the extent of the increases in expenditure that have occurred. Given that elements of operating costs are the most controllable costs in the short run, it would appear that the SWB has significant room to improve cost efficiency.

7.5.2 Hunter Water Corporation

As can be seen in Table 7.2, the HWC has been able to decrease its real operating costs per property by about 5% per annum on average over the past five years.

When employee provisions are excluded, the HWC's real operating costs per property have shown a modest decline in the last few years. This follows a larger reduction in the years 1987/88 to 1989/90 and may indicate that the HWC will find it difficult to make further gains in reducing operating costs in this area. The major gain in operating cost savings in the 1991/92 period was in employee provision savings (which is essentially not a short-run controllable cost). Employee provisions include provision made for long service leave, annual leave, sick leave and superannuation. As mentioned above, the HWC has reduced its superannuation liability this year.

Table 7.2 HWC- trends in operating costs per property

	Operating cost per property		Operating cost per property (excluding provisions)	
	\$	% increase	\$	% increase
1987/88	488		412	
1988/89	477	-2.3	393	-4.6
1989/90	442	-7.3	357	-9.2
1990/91	463	4.8	354	-0.8
1991/92	394	-14.9	348	-1.7

Source: Derived HWC financial statements. A property is defined as a water property. Operating costs for 1990/91 and 1991/92 differ from the financial information described in Appendix 5. They have been adjusted for non-recurrent expenditure such as the cost of corporatisation, and changes in the treatment of (1) motor vehicle depreciation and (2) the cost of external sales.

7.6 Marginal costs

Travers Morgan⁴⁰ has estimated the average marginal costs for water services in the Sydney and Hunter regions. It should be stressed that these are draft estimates which are subject to further discussion with the agencies. Further, they reflect currently projected costs, which may differ widely from efficient costs and do not include environmental costs.

⁴⁰ Travers Morgan, *Economic Model for the Appraisal of Water Board Pricing Regimes*, November 1992.

Travers Morgan, *Economic Model for the Appraisal of Hunter Water Corporation Pricing Regimes*, March 1993.

The costs estimated by Travers Morgan are based on current business plans. In the case of the SWB at least, these business plans are currently under review and may change substantially. The projected productivity gains in these plans are quite modest compared with the apparent gap between current practice and likely best practice. The analysis assumes a discount rate of 6%, that is, prices set on this basis would provide a 6% real return on the new investment required.

7.6.1 Comparisons of marginal costs

It should be noted that in all categories except one in Table 7.3, estimated marginal costs for the SWB are higher than those for the HWC. The only exception is the marginal cost of water. The higher cost for the HWC in this case reflects the economies of scale for dams. The cost/kL for a small dam is greater than the cost/kL for a large dam. For inland treatment works, HWC's marginal costs are 64 cents while the SWB's are \$1.22. The HWC also has lower marginal costs at ocean treatment plants despite having a higher standard of treatment.

However, direct comparison of marginal costs does not necessarily indicate that one water supplier is any more efficient than other suppliers. Some costs may not be controllable; for example, geographical factors are beyond the control of any water supplier.

It should also be stressed that these estimated marginal costs are preliminary and indicative only and their preparation was hampered by data problems. The estimates also depend on the timing of future capital works. It is considered that the estimates may understate the marginal cost of water for the SWB and overstate that for the HWC (see Chapter 9).

Table 7.3 Estimated marginal costs

	Network Access \$ pa	Water Usage \$/kL	Waste Discharge \$/kL
SWB			
Residential	286	0.42	0.29 or 1.22
Other			
- not trade waste	286	0.42	0.29 or 1.22
- trade waste	786	0.42	>0.29
HWC			
Residential	>230	1.30	>0.22 or >0.64
Other			
20 mm meter	>230	0.84	>0.22 or >0.64
100 mm meter	>230	0.84	>0.22 or >0.64

7.7 Cost drivers

Principal cost drivers in the water industry include:

- ♦ factors affecting the *demand for services* such as population growth, urban expansion, industrial development, environmental/regulatory controls, and topography.
- ♦ *industrial relations policy* which determines employment conditions, labour-shedding practices and the use of external contractors. Wages are a significant cost in the water industry.
- ♦ *technological developments*, which can have a big impact on costs. For example, the most economically efficient way to treat sewage is in large scale treatment plants. Local treatment of sewage, although technologically possible, has been expensive. However, innovations in the design of local systems may quickly change the economics in favour of smaller decentralised systems.
- ♦ *economic conditions*, which can significantly influence the costs of inputs. For example, while the economy is in recession, any contracting-out expenses should be lower as contractors bid low to keep up cash flow at the expense of profit.
- ♦ *dividend requirements* sought by the owners of the water supply authorities. The cost of equity to the business will be influenced by what the owners decide is an appropriate dividend. Because water suppliers are publicly-owned, there are few market pressures to determine a commercial rate of return and dividend levels.

Urban development and environmental pressures may be greater in Sydney than on other water suppliers and these cost drivers may have a significant impact on the SWB's costs. However, the HWC is achieving higher environmental standards at costs comparable with the SWB's current costs.

The other major cost drivers affect all water suppliers in similar ways except for the issue of dividends. Gosford and Wyong are not required to pay dividends comparable with the dividends required by the State Government from the SWB and the HWC. (This issue is addressed in Chapter 6.)

7.8 Paucity of data

The Water Inquiry has highlighted the fact that information systems in the water suppliers are not geared to providing the information that the Tribunal needs to effectively regulate prices in the industry. Because activity-based financial information is not available, it is difficult to determine whether individual cost-efficient solutions have been found.

There is a need for the Tribunal to be confident that cost information supplied by the water suppliers is the most appropriate and the best information available. For example, the capital works programs of the suppliers should be validated as being correct and consistent with minimising costs.

The UK Office of Water (OFWAT) has set up procedures to independently certify the information supplied by water distribution companies as an integral part of the regulation of the water industry. Independent certifiers are engaged by the water companies to provide an independent assessment of aspects of their operations which are of interest to OFWAT.

The Tribunal believes it may be necessary for a certification system to be adopted to validate the costs of water suppliers in NSW, although it would be less intrusive than the OFWAT certification system. There are benefits in making information as accurate as possible. Wyong Shire Council's submission, supports the Tribunal's view that the need for greater efficiency should be weighed against the danger of overburdening the industry with regulatory compliance costs. The SWB's submission argues that AWRC should take on the role of any cost validation beyond what is already required by the Auditor General.

The Tribunal needs to know that the industry's data bases and data recording systems are set up to provide all information needed to effectively regulate the water industry. The Tribunal is concerned that minimum total-cost solutions be implemented. An independent auditor may need to assess whether capital works programs provide a minimum total-cost solution. Agreement to independent certification to validate costs could be a part of a licence agreement between operators and the water resource owner.

Proposal 7.1: The Tribunal proposes that the option of a certification system to validate the costs of NSW water suppliers be considered after industry consultation. There are benefits in making information as accurate as possible, but these should be weighed against the danger of overburdening the industry with regulatory compliance costs.

Proposal 7.2: The Tribunal proposes that water suppliers develop activity-based financial information. The Water Inquiry has highlighted the fact that current information systems are not necessarily geared to providing the information that the water suppliers or a regulator would require in order to set prices which reflect the cost of providing a particular service.

7.9 Performance indicators

The development of performance indicators is important to the price regulation of aspects of urban water supply which are not contestable. Performance data is needed to assess comparative performance, permit the monitoring of trends over time, and inform customers about how efficiently the particular water supplier is providing the service.

Performance monitoring of water suppliers is essential to assessing the cost efficiency of each supplier and any gains made from micro-economic reforms in the industry. Performance monitoring is not a new concept for NSW utilities. The NSW electricity distribution industry has signed performance monitoring agreements with the Government since 1988/89 and performance indicators are published annually. Performance monitoring of the water suppliers (which includes the SWB and the HWC) is undertaken by the Australian Water Resource Council Water Industry Performance Review. The AWRC states in the 1987/88 to 1990/91 Review:

"For most goods and services produced by the economy, market forces (including the threat of takeovers) are relied upon to ensure the efficient use of resources. However, for monopolies like water suppliers this discipline is missing. Performance comparisons are designed to provide an objective evaluation of management performance."

The National Government Trading Enterprise (GTE) monitoring process has also developed a set of performance measures on which the SWB and the HWC report annually. Gosford and Wyong Councils complete a performance monitoring review administered by the Public Works Department.

Although performance monitoring is important to imposing cost-efficiency discipline on water suppliers, care must be taken when comparing the relative cost performance of different suppliers. There are many reasons why costs might vary. Statistical analysis will identify differences, but not causes. There may be good reasons why some services of a water supplier will seem less cost-efficient than those of other operators in seemingly similar operating environments.

The Tribunal considers that is not sufficient to only compare the performance of suppliers within Australia. There is considerable interchange of information between Australian authorities, which can assist suppliers to achieve performance standards or operational norms. However, there is less exchange of information and contact with overseas suppliers. This may result in local standards of performance lagging behind overseas levels.

7.10 Benchmarking

Benchmarking involves the continuous, systematic evaluation of those products, services and processes of organisations that are recognised as representing best practice. The benchmarks are then applied to a business as a means of improving its organisational efficiency. Some Australian companies are claiming high efficiency gains from benchmarking to international best practice. The benchmarking of performance to international best practice is required to assess the NSW water industry in

relation to the world's best and to target areas where improvements can be made.

The SWB is currently undertaking a benchmarking study with water authorities in Yorkshire and Massachusetts⁴¹. The study highlights areas where the most efficiency gains can be made. Whilst results in Table 7.4, must be regarded only as indicative, the SWB has identified a number of areas where it seems quite large efficiency improvements can be made.

Table 7.4 SWB - Comparison^a of Key Performance Indicators (KPI)

Process	Performance Gap in KPI	Comparison with
Revenue collection (cost per property)	\$26	Yorkshire
Water reservoirs and reticulation (cost/km pipe)	\$2,260	Yorkshire
Wastewater collection and transport (cost/km pipe)	\$4,210	Massachusetts
Wastewater treatment and disposal (Cost/ml primary treated)	\$75	Massachusetts

a. Performance gap measured as the difference between SWB's KPI to benchmark KPI.

Gosford City Council and Wyong Shire Council are currently undertaking a study which compares their performance with that of authorities in Australia and overseas. The AWRC is examining the development of a generic benchmarking methodology and has conducted six pilot case studies to test the applicability of the concept and the methodology. The HWC has participated in several of these case studies.

Although benchmarking is a useful tool for measuring the performance of water suppliers, there are problems with the analysis which require careful attention if the study is to be beneficial. The three most difficult problems of benchmarking include normalising the data to take out non-controllable variables in data from other enterprises, agreeing on what the water supplier needs to benchmark, and finding suitable benchmarking partners.

The Tribunal regards international benchmarking data as essential to determining the scope for productivity gains in the water supply industry in the medium and long-terms. Benchmarking in comparison to other Australian water suppliers is not as stringent as international benchmarking, because the water supplier is comparing its performance only with that of

⁴¹ Neville Green, *Strategies for Implementing International Benchmarking using Best Practice: Efficiency Issues for the Australian Water Industry*, IRR Conference, Effective Water Resource Management, Sydney August, 1993.

others with similar work practices. Given that NSW industry needs to be world competitive to maximise benefits to NSW consumers, it is only fair that water suppliers meet world standards.

Recommendation 7.1: The Tribunal recommends that the HWC undertake an international benchmarking study similar to the study being undertaken by the SWB. The Tribunal also recommends that industry participants consult each other to achieve uniform approaches to benchmarking wherever possible.

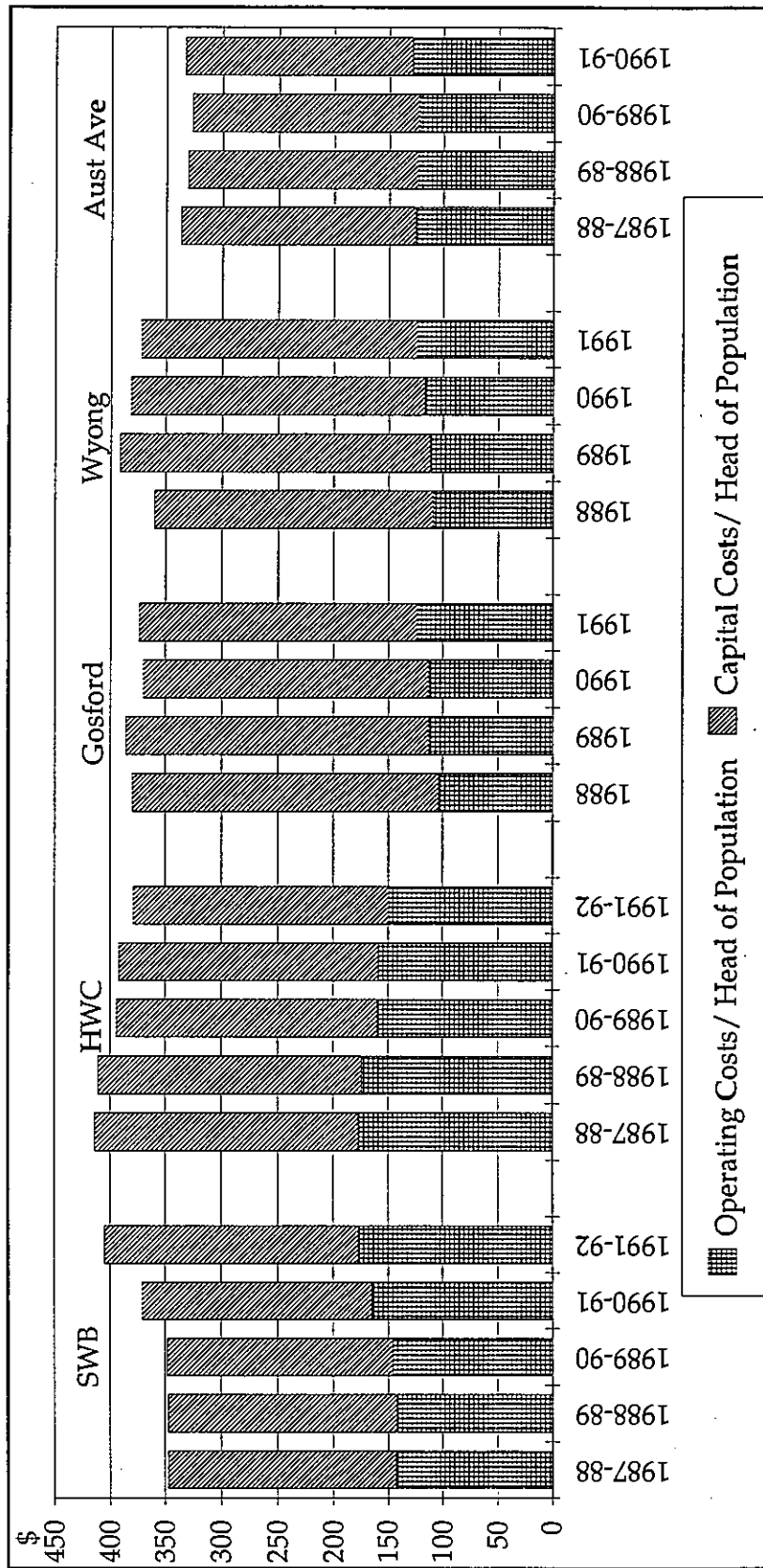
7.11 ARMCANZ Performance Review

The Agricultural and Resource Management Council of Australia and New Zealand (ARMCANZ) has recently published a Water Industry Performance Review 1987/88 - 1991/92 which compares the financial indicators for all major water suppliers. Comparing cost information from the SWB, the HWC, Gosford and Wyong Councils with the Australian average provides some indication of the relative cost structures of the major urban suppliers in NSW.

As seen in Figure 7.5, average total costs per head of population for all metropolitan water suppliers increased by 2.4% in real terms from 1987/88 to 1990/91. By comparison, the HWC reduced its total costs per head of population by 16% in real terms over the period 1987/88 to 1991/92, while the SWB's total costs/head of population increased by 8% in real terms in the same period. Gosford reduced its total costs by 9% in the four year period 1988/91. The HWC's and the SWB's total costs per head of population for 1990/91 were higher than the national average (HWC +23%), (SWB +26%).

The ARMCANZ Performance Review reinforces the previous analysis. It indicates that the SWB's operating costs are far from under control. While the HWC has its operating costs on a downward trend, it started the five year period as a high-cost producer, which gave it substantial scope for improvement. Gosford and Wyong have low operating costs and significant capital costs. Figure 7.5 indicates that their operating costs per head of population are rising. Capital costs per head of population, however, can be expected to fall because, as Gosford and Wyong grow, the fixed capital assets are serving a greater number of people.

Figure 7.5 Trends in the Costs of Service Provision, 1987/88 to 1991/92



Source: AWRC Water Industry Performance Review 1987/88 to 1990/91. All costs in \$1992. 1991/92 figures supplied directly by the SWB and the HWC. Gosford and Wyong data supplied directly. Gosford and Wyong's financial year is based on a calendar year. Capital costs include a 4% return on assets.

7.12 Private sector participation and competition

7.12.1 Scope for competition

In the short-term there is limited scope for introducing competition into the provision of urban water, sewerage and drainage services. The industry is essentially a natural monopoly which means that the lowest-cost solution is to have one firm supplying the service in each region.

However, in principle, competition could be introduced by franchising the right to service a particular area through a competitive tendering process. Franchising could work with or without a change in the ownership of the assets. However, as reported in the Industry Commission Report on Water Resources and Wastewater Disposal⁴², there is little evidence to suggest that the franchising-out of the water supply in France has introduced any more competition except in the bidding for the initial licences.

In Chapter 17, below, the Tribunal, recommends that Gosford and Wyong explore opportunities for extending the operations of the joint water supply scheme to a Central Coast Water Authority. The Central Coast Water Authority could then franchise the operation to Gosford and Wyong Councils with a view to competitive bidding for the franchise in five years' time.

If franchising was done on a regional basis, competition could be sustained by introducing comparative competition between regions. However, the increased costs of setting up regional administrations may outweigh any benefits realised from the possibly ineffective comparative discipline on costs.

One way to introduce competition into the industry would be to promote alternatives to the products supplied by the natural monopoly. If there was scope for customers to partially opt out by installing rainwater tanks for garden use or technologically advanced septic systems, water suppliers might be faced with some degree of competition. However, the scope for competition is limited by the possible health risks of owner-maintained systems and pricing systems that offer little reward for opting out.

While it would be difficult to introduce competition into the supply of outputs in the water industry, private sector participation in the provision of water supply inputs is seen as a way for the industry to be more cost-efficient, by introducing elements of competition.

7.12.2 Private sector participation in infrastructure

The extent of private sector participation in the water supplier's infrastructure development ranges from complete build/own/operate (BOO) schemes and build/own/operate/transfer (BOOT) schemes to design only or construct only contracts.

⁴² Industry Commission, *Water Resources and Waste Water Disposal*, Report 26, July 1992.

The increasing use of BOO(T) schemes and other joint venture arrangements raises difficult issues of public accountability. Such schemes can involve substantial contractual risks and possible contingent liabilities. This is not unusual. The construction of large assets will always involve risks. BOO(T) arrangements may simply mean that the construction and operating risks, and the sharing of the benefits and costs, are more clearly defined by the BOO(T) contract.

The appropriate level of accountability and public scrutiny is a matter for concern for Parliament and various government agencies such as Treasury and the Auditor-General.

The Tribunal's primary interest is to ensure that the use of BOO(T) schemes and other innovative financing requirements minimises costs while meeting the necessary operational standards. This requires that suppliers:

- inform the Tribunal of the nature of the contracts between the parties and the future obligations of the supplier.
- specify the risks involved and the sharing of these risks between the parties.
- demonstrate that the proposed scheme is more cost-effective than alternatives including direct provision of the service by the supplier. This assessment should be adjusted for the risks inherent in each approach.

The Tribunal does not have an interest in how private sector funding is to be provided or the identity of private participants in the project unless the viability of the proposal is questioned.

Build, own, operate, transfer - BOO(T)

In a BOO(T) arrangement, the private sector designs and builds the infrastructure, finances its construction, and owns, operates and maintains it over a concession period.

The SWB's Rouse Hill Development Project and Water Treatment Projects are prominent large scale infrastructure projects which are designated for private sector participation. The Rouse Hill Development Project is a typical funding package whereby a consortium consisting of a group of land owners will initially fund through borrowing's and project manage the staged provision of water-related services. The SWB will take over ownership of the assets after the successful commissioning of works. Repayment of capital costs related to areas other than those owned by the consortium, but benefiting from the project works, will be made by the SWB. This arrangement will effectively result in a deferral of funding of urban development works. The design and construction risks will be borne by the private sector.

The new water treatment works at Prospect, Macarthur, Illawarra and Woronora, on the other hand, represents full private sector involvement in the financing, design construction, ownership and operation of new plants under a contractual arrangement over 25 years. The four plants, which will have a total capital cost of \$520m when completed, are expected to improve drinking water quality in the Sydney area to meet the 1987 NHMRC health guidelines and the 1993 draft quality guidelines. Currently, the SWB has finalised the agreements between the Board and the private consortiums for the Prospect and Macarthur schemes.

The Tribunal is concerned that the overall cost of a BOO(T) project should compare with other fully costed alternatives including the traditional funding and operation by the water supplier. Obviously, appropriate methods of determining costs and assessing tenders need to be established.

For example, it has been revealed that the SWB will pay approximately \$84m per annum for water treatment to the BOO(T) owners. This represents a 6% increase in the Board's total costs for provision of water services, currently standing at \$1.3 billion per annum.

The Tribunal is concerned about the impact of BOO(T) schemes on future costs and revenue requirements. The projects require a sound environmental and economic justification and a reliable estimate of the total costs involved over the contract term of 25 years. The Tribunal has sought details of the SWB's contractual arrangement for the water treatment works to ensure that the customers are protected in terms of prices, pricing policies and quality of services. (A more detailed discussion of this issue can be found in Chapter 5.)

The pricing arrangements within the BOO(T) agreement may change the usual way of recognising costs of services. Subject to the performance of the private developer and the output volume, BOO(T) payments to the private developer are likely to be a lump sums inclusive of interest, debt repayment, return to investors and operating costs. If these payments are not dissected, the future cost structure of water services will be affected compared with the traditional way in which the water supplier undertakes a project in its own right:

- ♦ The break-down into economic costs of operating, depreciation and rate of return would have to be determined arbitrarily.
- ♦ The operating cost components, in terms of major inputs of labour and material, are not readily available or identified.

Recommendation 7.2: The Tribunal recommends that private sector participation in the water suppliers' infrastructure be examined in order to make the industry more cost-efficient. The extent of private sector participation in the water suppliers' infrastructure development ranges from full build, own, operate schemes to design only or construct only contracts.

Recommendation 7.3: The Tribunal recommends that water suppliers develop a methodology to allow the overall cost of BOO(T) projects to be compared with other fully costed alternatives including the traditional funding and operation by the water supplier.

7.12.3 Contracting-out

Contracting-out is a method of introducing competition for inputs into a market where monopoly power precludes competition for outputs. Contracting-out has been seen as one area where the water suppliers can make significant savings by allowing outsiders to provide services normally provided internally at greater cost.

There is considerable scope for contracting-out in the urban water industry of, for example, capital works, maintenance, meter reading and head office support such as information services. Melbourne Water has contracted out catering, stationery supply, cleaning, security and information technology. It claims to have saved 20% to 30% on direct labour costs and more if overhead cost savings are included.

NSW urban water suppliers have increased the amount of contracting-out significantly. For example, in the SWB, contracting-out has risen in real terms (1992\$) from \$84m in 1989/90 to \$165m in 1991/92.

However, from the available financial information, it is not clear that the move to contracting-out has produced any significant cost savings for the SWB.

Contractors fees have risen 72% per annum on average over the past five years, consultants costs have risen 46% per annum; and labour costs 6% per annum - hardly consistent with new-found efficiency through contracting-out, although it may be argued that costs would be even higher if the shift to contracting-out of some services had not occurred.

7.13 Scope for productivity improvements

7.13.1 Current position

The Tribunal believes that current costs in the urban water industry are well above the costs which would be faced in a competitive market. Therefore there must be substantial scope for gains in productive efficiency by the industry.

7.13.2 Targets

Work has been commissioned by the SWB to identify where potential cost reductions can be made. Without pre-empting the SWB's study, the Tribunal believes that the SWB can increase its productivity by at least 25% over the next three years. Melbourne Water is considered to be one of the better

performing water suppliers, and it has been estimated that the SWB's costs need to be cut by 40% for it to become comparable to Melbourne Water. The Tribunal would expect this target to be met within a few years. The HWC should also be able to also reduce its costs by significantly more than the 2% per annum specified in its licence agreement.

This judgement is based on available information about the scope for productivity improvements and the ability of the water suppliers to adjust their costs overtime towards world's best practice. International benchmarking of activity areas is required to highlight areas where the scope for productivity gains are greatest. Those would then become the areas of focus for cost-efficiency programs.

The SWB is currently measuring total factor productivity (TFP) in the organisation. The HWC has not analysed its TFP, but it does measure partial productivity for the ARMCANZ Water Industry Performance Review.

7.13.3 Achieving productivity gains

Factors which can contribute to the achievement of productivity gains include:

- ♦ the level of competition in the industry
- ♦ whether price regulation is conducive to rewarding a water supplier's increased productivity
- ♦ whether the organisational structure of the industry can provide a framework for commercially focusing the organisation to increase its productivity.

Price regulation

The Tribunal's objectives for price regulation include the promotion of effective competition where feasible and the provision of a greater incentive to internal efficiency in the absence of a competitive or contestable market. $CPI \pm X$ is the preferred form of price regulation to provide this incentive, although the determination of the productivity component of the "X" in a $CPI \pm X$ price formula is a difficult process which may need refinement over time. (This issue is discussed fully in Chapter 16.)

Competition

The value of competition, especially as a spur to efficiency check depends on the market structure of the industry. Competition for inputs will reduce costs, but competition can also be counter-productive if industries with economies of scale are forced to reduce output.

The attitude taken to competition in the water industry will depend on the view of the effectiveness of potential competition in affecting market

outcomes. Because many sections of the water industry are natural monopolies, competition could lead to a less efficient outcome. As mentioned above, contracting-out has the potential to introduce competition into the market for inputs. Price regulation may still be required as an impetus to efficiency, because a natural monopoly does not necessarily have the motivation to impose cost disciplines on the contracting-out process.

Corporatisation

Corporatisation is often seen as a means of increasing efficiency in the water industry. The HWC has been corporatised, and has an operating licence which provides a much clearer delineation of its role in environmental and river management than has been provided to the SWB. *The clear separation of operational and policy functions is an important requirement for an efficient water industry.*

The corporatisation of a government trading enterprise (GTE) involves clear organisational objectives, greater management responsibility and accountability, commercial dividends and targets for rates of return and a defined management direction through strategic planning. The board of a corporatised entity is more likely to have the commercial focus which is necessary if costs are to be reduced.

Whilst corporatisation may be a necessary step in developing the structures and arrangements most appropriate to achieving maximum efficiency gains, the Tribunal does not have any view about whether this should or should not lead to privatisation. This is a matter for the community and Parliament.

7.14 Summary of recommendations

A certification system should be considered, after industry consultation, to validate the costs of the water suppliers in NSW. There are benefits in making information as accurate as possible.

Private sector participation in the water suppliers' infrastructure should be examined as a means of making the industry more cost-efficient. The extent of private sector participation in the water suppliers' infrastructure development ranges from complete build, own, operate schemes to design only or construct only contracts.

Water suppliers need to develop activity-based financial information. The Water Inquiry has highlighted the fact that the water suppliers' information systems are not necessarily geared to providing the information that the water suppliers or a regulator would require. The HWC should undertake to complete an international benchmarking study similar to the study being undertaken by the SWB. The Tribunal also recommends that industry participants consult to achieve uniform approaches to benchmarking wherever possible.

APPENDIX

Table A7.1 Trends in Costs - SWB

Costs Per Property (1992\$)	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	Last 2 yrs % change	Last 5 yrs % change
- Operations excluding emp. provisions % change	338	337 (0.3%)	335 (0.6%)	312 (6.9%)	362 16.0%	414 14.2%	32.6%	22.6%
- Employee provisions % change	107	75 (30.0%)	152 102.6%	93 (38.3%)	82 (12.2%)	60 (27.2%)	(36.1%)	(20.1%)
- Operations % change	445	412 (7.4%)	487 18.1%	406 (16.7%)	444 9.5%	473 6.6%	16.8%	14.9%
- Financing charges % change	304	279 (8.1%)	205 (26.6%)	210 2.5%	185 (12.1%)	168 (9.1%)	(20.0%)	(39.9%)
- Others % change	38	37 (1.9%)	29 (22.5%)	24 (17.3%)	26 9.4%	26 (2.6%)	6.5%	(31.7%)
Total costs/ property (excluding deprec) % change	787	729 (7.4%)	721 (1.1%)	639 (11.3%)	655 2.4%	667 1.8%	4.3%	(8.5%)
- Depreciation % change	79	78 (0.6%)	73 (6.4%)	106 44.7%	188 77.1%	227 21.0%	114.3%	190.4%
Total costs/property % change	866	807 (6.8%)	794 (1.6%)	745 (6.1%)	843 13.1%	894 6.1%	19.9%	10.8%

Table A7.2 Trends in Costs - HWC

Costs Per Property (1992\$)		1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	Last 2 yrs % change	Last 5 yrs % change
- Operations excluding emp. provisions % change		n/a	412	393 (4.6%)	357 (9.0%)	354 (1.0%)	348 (1.6%)	(2.6%)	(15.4%)
- Employee provisions % change		n/a	76	84 9.9%	85 0.8%	109 29.0%	46 (58.0%)	(45.8%)	(40.0%)
- Operations		n/a	488	477 (2.3%)	442 (7.3%)	463 4.7%	394 (14.9%)	(10.9%)	(19.3%)
- Financing charges % change		n/a	279	265 (5.0%)	212 (20.0%)	184 (13.4%)	160 (12.8%)	(24.4%)	(42.6%)
- Others % change		n/a	3	8 149.1%	1 (82.8%)	14 991.3%	18 23.4%	1247.0%	477.0%
Total Cost/property (excluding depreciation) % change			770	750 (2.7%)	655 (12.6%)	661 0.8%	576 (12.8%)	(12.1%)	(25.2%)
- Depreciation % change		n/a	68	75 9.9%	75 0.6%	228 201.7%	221 (2.9%)	192.9%	223.7%
Total costs/property % change		n/a	838	825 (1.7%)	731 (11.4%)	889 21.6%	797 (10.3%)	9.1%	(4.9%)

Table A7.3 Trends in Labour Costs - SWB

	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
Total Labour Cost (\$M)	272	280	304	335	389	406
Total Labour Cost (\$M) (1992\$)	365	350	350	357	396	406
No of employees	10,966	9,629	9,090	9,582	9,367	9,142
Total Labour Cost/employee (1992\$)	33,254	36,298	38,553	37,276	42,246	44,454

Table A7.4 Trends in Labour Costs - HWC.

	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
Total Labour Costs (\$M)	na	38	39	39	na	na
Total Labour Costs (\$M) (1992\$)	na	47	45	41	na	na
No of employees	na	1,384	1,280	1,128	1,106	1,021
Labour Cost/employee	na	33,810	34,810	36,412	na	na

8 FINANCIAL PERFORMANCE AND REVENUE REQUIREMENTS

8.1 Introduction

Price setting for the water suppliers requires analysis of each supplier's financial viability. This involves consideration of the composition, level and funding of its expenditure.

Chapters 5 and 7 discuss the water suppliers' proposed capital expenditure programs and their cost efficiency. This chapter places the outcomes of those discussions in the context of the overall financial position of individual water suppliers.

Importantly, the chapter also examines the extent to which consumers may be expected to continue to meet the escalating revenue needs of the suppliers through increased bills. This consideration is of critical concern to the Tribunal because of significant increases in bills in recent years. For example, revenue from water, sewerage and drainage charges for the SWB has increased in nominal terms at the rate of 11% per annum over the four years to 1991/92, mainly through increases in bills. This rise in revenue amounts to a 52% increase over the four years. The economy was in recession for much of this period.

This chapter:

- ♦ discusses performance measurement
- ♦ analyses the historical and projected financial results of the water suppliers
- ♦ explores opportunities for funding price reform, within the constraints of possible capital and operating expenditure requirements

8.2 Performance measurement

The accounting policies of the water suppliers have not been consistent over time, neither between one another, nor with the private sector. Examples of inconsistencies include the valuation of assets, the accounting treatment of developer funded assets and the asset lives applied to specific categories of asset.

The inconsistency has stemmed from lack of uniformity in the different statutes applicable to the various water suppliers. The Tribunal will have to develop a common format and data dictionary for the basic financial and statistical data to be included in pricing submissions. Every effort will be made to minimise the workload for water suppliers.

Proposal 8.1: The Tribunal will provide a pro forma return to each of the water suppliers to encompass the minimum financial and statistical data required for pricing submissions. A draft of the return will be given to the suppliers by 1 December 1993 with the intent being that the format of the return will be finalised for use by those suppliers submitting pricing proposals for decisions subsequent to 1 January 1994.

Further inconsistencies are possible in the accounting treatment of assets and liabilities created under BOO (build/own/operate) schemes and developer-funded assets (See chapter 13). The development of policies to account for these items will be closely monitored by the Tribunal.

In the absence of competition in the water industry, the State Government has attempted to improve efficiency by creating checks and balances to substitute for elements of a competitive market environment. In the case of the SWB and the HWC, these checks and balances include establishment of rate of return targets⁴³ and the payment of a dividend and tax equivalents to the Government (as both shareholder and tax collector).

The Chamber of Manufactures of NSW⁴⁴ and the NSW Treasury⁴⁵ have expressed contrary views on these issues. The Chamber of Manufactures of NSW has commented:

"Given the fact that business customers of the SWB pay much more than the cost of supplying the services they consume and therefore are subsidising residential customers, it is argued that -

- ♦ business is funding a community service obligation of the government; and
- ♦ any dividend paid to government is a direct appropriation from business.

Accordingly, until the cross-subsidy is eliminated ... there should be no dividends payable to government".

Conversely, the NSW Treasury has argued for a higher dividend:

"Treasury is of the view that the Government as owner of the supply agencies, and representing the interests of taxpayers should obtain a satisfactory return on assets and equity; consideration of these issues is neglected in the Tribunal's (Interim) report; more detailed consideration needs to be given to the impacts of the Tribunal's recommendations on the Government's financial returns...

For decades the taxpayer has been providing low cost capital to the Sydney Water Board, though it is accepted that the Board has not necessarily translated this into benefits by way of continual productivity improvements for the Board's customers. The generally poor dividend return to the Consolidated Fund has compromised Budget funding of General Government Sector programs...

⁴³ The role of rate-of-return was discussed in Attachment 8 of the Interim Report.

⁴⁴ Chamber of Manufactures of NSW (1993), *Submission on Water: An Interim Report*, 23 June.

⁴⁵ NSW Treasury (1993), *Comments on Water: An Interim Report*, June.

Treasury is of the view that a WDRC⁴⁶ approach (to rate of return) is methodologically sound. In a competitive market it should yield a value for the business equal to its economic value (defined as the net present value of its future cash flows). It is accepted, however, that application of private sector RORs⁴⁷ to the presently measured WDRC asset base yields unrealistically high ROR targets.

A practical approach that the Tribunal might consider...would be to identify WDRC as the appropriate reference for adjustment of prices, but on a transition path of, say, five years ...

As a first step, in year one, it is suggested that the Tribunal should be setting prices that support a commercial return on a historical cost basis. That return should be at least equivalent to the prevailing long-term bond rate".

The issues surrounding the setting of dividends have not been resolved. The Tribunal is not empowered to fix the level of dividends but does, in general, concur with the owner's earning a return on its investment in water supply. If, as suggested by the Treasury, the WDRC approach to rate of return is appropriate, then the Tribunal considers that it would be more acceptable if the issues surrounding the application of WDRC and efficient costs were resolved prior to implementation. The adoption of a hybrid approach, mixing historical cost and WDRC, might guarantee the Government a return, but without resolving the underlying problems. The Tribunal does not accept this proposal. The Tribunal's recommended approach to the regulation of prices for water services is set out in Chapter 16.

At the same time, it must be recognised that the application of funds otherwise designated for dividend payments, to the reduction of cross-subsidies would create budgetary problems for the Government. A balance must be sought between the competing interests of the customers (both residential and non-residential) and the government as owner. Achieving required rate of return targets should be contingent upon the suppliers having attained acceptable levels of efficiency, having discounted the value of surplus plant and having pursued appropriate funding and accounting policies. Consumers cannot be expected to underwrite the financial returns of the suppliers unless appropriate levels of performance have been achieved.

The financial returns of the suppliers, will, as with their private sector counterparts, be subject to prevailing economic conditions, the capacity of consumers to pay and specific external challenges which may temporarily impose on suppliers a lower rate of return.

Local Government, including Gosford and Wyong Councils, has clearly stated its opposition to any attempt by the State Government to impose a dividend requirement on water and sewerage operations. This opposition is based on:

- the unresolved question of ownership of the relevant assets. Local Government contends that the assets used to provide the water services

⁴⁶ WDRC: written down replacement cost

⁴⁷ ROR: rate of return

are owned by the local communities, and not by the State Government, and it would therefore be inappropriate for the State Government to impose a dividend.

- ♦ Gosford Council's claim that the imposition of a dividend would be contrary to the Government's decentralisation policy. This policy has involved the Government providing a subsidy of 50% of the major capital works of the country councils.
- ♦ Gosford and Wyong Councils' stated preference to reduce their level of debt and their water charges rather than to fund a dividend.

The Tribunal is concerned with pricing policy and not asset ownership. If Gosford's and Wyong's charges are set on a different basis from those of the SWB and HWC, distortions in location decisions and resource use will occur. In the absence of the resolution of asset ownership it may be possible for local government to impose a rate of return and dividend requirement on its water and sewerage operations, with the proceeds being distributed to Councils' general funds.⁴⁸

Proposal 8.2: The adoption of rate of return targets is contingent upon the resolution of income and asset measurement problems. The total elimination of a dividend from the SWB to the Government to reduce cross-subsidies, is not practicable in the Government's current budgetary position. However, the SWB's profits and the dividend to the Government cannot be insulated from SWB inefficiencies. The Tribunal proposes that cross-subsidies largely be reduced from funds made available by efficiency gains.

8.3 Past financial performance

In recent years, the water suppliers have demonstrated these characteristics:

- ♦ strong, predictable cash flows
- ♦ stable or reducing levels of debt
- ♦ large investments in long-lived assets
- ♦ rates of return on assets (valued at current cost) below NSW Treasury guideline.

⁴⁸ Refer Chapter 17-Local Government Issues.

Table 8.1 Key Financial Indicators

Indicator	SWB ⁽¹⁾	HWC ⁽¹⁾	Gosford ⁽²⁾	Wyong ⁽²⁾
Total income (\$m)	1340	142	66	42
Gross profit margin with				
Depreciation at - historical cost(%)	42.6	44.1	41.4	44.9
- current cost(%)	27.3	27.6	na	na
Return on average assets				
- historical cost (%)	10.9	9.3	8.4	6.9
- current cost (%)	2.8	2.3	na	na
Financial risk				
- current ratio	0.34	0.99	1.48	1.41
- Debt to equity ratio				
historical cost	0.56	0.52	0.81	0.47
current cost	0.15	0.14	na	na
- Liabilities to total assets ratio				
historical cost	0.42	0.45	0.48	0.34
current cost	0.17	0.18	na	na
- Interest cover				
historical cost	2.53	2.30	1.34	1.37
current cost	1.62	1.43	na	na
Net cash flow (\$m) ⁽³⁾	445	47	25	13

(1) 1991/92

(2) 1992

(3) For simplicity, because of the different accounting practices of water suppliers, net cash flow has been defined as operating profit plus depreciation.

In 1991/92, the SWB generated 9.4 times greater income than the HWC. Allowing for difference in size, their financial results are similar. The SWB attracts a AAA credit rating from Australian Ratings, while the HWC attracts an AA. The rating is an indication of financial strength and the maximum rating achievable is AAA. The difference in rating is a reflection of the greater risk associated with the HWC's income stream which is more narrowly based (one customer, BHP, contributes far more to the HWC's income than any single customer of the SWB). The SWB is one of only 13 organisations in Australia which currently attract a AAA rating. To receive a AAA rating is not without cost. To maintain this rating the SWB would need to internally fund its proposed capital works program through higher charges to consumers.

The Councils' results are boosted, (particularly Gosford's), by the inclusion of government grants and subsidies as income. If they were excluded, Gosford's gross profit margin on historical cost basis would have fallen to 28.1% and Wyong's to 40.4%.

A comparison between the water suppliers and the 1992 average of the Industrial Group of private companies listed on the Australian Stock Exchange is set out below:

Table 8.2 Comparison of Public and Private Sectors

Performance Measures	SWB	HWC	Average ASX Industrial Group
Gross margin (EBIT/sales)(%)	43	44	10
EBIT/total assets (%)	11	9	9
Interest coverage (ratio)	2.5	2.3	3.2
Debt to equity (%)	56	52	88

EBIT- earnings before interest and tax.

All the above comparisons, including interest cover, are calculated on a historical cost basis to minimise differences in accounting policies. However, the private sector may adopt shorter asset lives than currently applied by the SWB and the HWC to calculate depreciation to maximise taxation deductions. This could result in the water suppliers' comparative financial position being shown in Table 8.3 in a more favourable light than would be the case otherwise.

Table 8.2 suggests that:

- ♦ the water suppliers earn large returns relative to their level of sales. This is not duplicated in their returns on assets, reflecting the capital-intensive nature of the water supply industry. It may also be a reflection of how efficiently they use their assets.
- ♦ the ability of the water suppliers to cover their financing costs is marginally below that of the private sector, although such comparisons must be made in the light of the water suppliers' more stable and assured revenue stream.
- ♦ recent reductions in the level of debt by the water suppliers bring them considerably below the benchmarks for the private sector. Early repayment of debt by the water authorities (given the length of life of their assets) could involve the current generation bearing the cost of providing benefits to be enjoyed by future generations.

8.3.1 The Sydney Water Board

The SWB's performance from 1987/88 to 1991/92, unadjusted for inflation, is summarised in Table 8.3.

Table 8.3 SWB Financial Results (\$m)

	1987/88	1988/89	1989/90	1990/91	1991/92
Trading Revenue	768	890	1005	1106	1165
Other Revenue	150	128	148	190	175
Total Revenue	918	1018	1153	1296	1340
Operating Costs					
Labour	214	236	226	246	260
Contractor Fees	10	5	17	39	83
Consultant Fees	3	4	3	12	16
Labour & Fees	227	245	246	297	359
Materials & Other	117	125	132	175	196
Total Operating Costs	344	370	378	472	555
Depreciation	77	81	128	245	305
Interest	273	226	254	241	225
Other	95	199	143	141	114
Total Expenses	788	875	902	1098	1200
Operating Profit	129	142	251	198	140

The significant changes over the four years have been:

- (a) Trading revenue has increased by \$397m to \$1165m, which represents an 11.0% nominal increase per annum.
- (b) Total operating costs have increased by \$211m to \$555m, a 12.7% increase per annum. An important component has been the increase in labour costs and contractors' and consultants' fees by \$132m. Forecasts for the year ending 30 June 1993 indicate that operating costs will have increased by \$31m to \$586m, another 6% rise.
- (c) The most significant change has been depreciation expenses, which have risen from \$77m to \$305m, an increase of \$228m. The increase in depreciation charges is largely the result of the revaluation of assets and the adoption of current-cost accounting in the calculation of depreciation.

There have been other less significant changes including a reduction in interest expenses (\$48m), but these are less critical among developments over the period.

The highly significant increases in expenses have been funded entirely by consumers while operating profit over the period increased marginally from \$129m to \$140m. Chapter 7 discusses the reasons for the significant increase in operating expenses. Given the information currently available, it is not possible to determine whether the increases resulted from reduced productivity or from the cost of meeting higher environmental standards. If they resulted from reduced productivity, it is not unreasonable that profits should reflect this lower level of performance. If they resulted from meeting new and higher standards, a competitive private sector organisation would, in times of new challenges or adversity, expect to absorb some of the increased cost burden through lower profits, at least in the short-term.

In addition to operating costs, the other significant increase in expenses is the depreciation charge which flows from the revaluation of assets.

The magnitude of the revaluation can be derived from the 1991/92 SWB Annual Report as set below:

System Assets	=	\$13.7b
(current book value)		
Less		\$8.8b
Asset Revaluation Reserve		
Value at historic cost		\$4.9b

The assets of the SWB are now appearing in the accounts at almost three times the value (\$13.7 billion versus \$4.9 billion) that they would have under the historical cost approach that was used by the SWB until 1989 and is still used by all private sector companies.

There are many arguments for and against replacement-cost accounting. A key test of its usefulness is the reasonableness of the outcomes. The most significant impact for the SWB is to dramatically increase depreciation expenses. (Most of the increase in depreciation from \$77m in 1987/88 to \$305m in 1991/92 has resulted from this change.)

Depreciation is a critical source of internal funds for any organisation. As it is a non-cash expense, it has the effect of being retained in the organisation to fund capital expenditure, pay dividends or reduce debt.

The cash generated from operations by the SWB in the period to 1991/92 is shown in Table 8.4.

Table 8.4 SWB - Cash generation (\$m)

	1987/88	1988/89	1989/90	1990/91	1991/92
Operating Profit	129	142	251	198	140
Add back:					
Depreciation	<u>77</u>	<u>81</u>	<u>128</u>	<u>245</u>	<u>305</u>
Cash generated from operations	206	223	379	443	445

(Note: There are other non-cash adjustments that can be included in calculating cash generated from operations but they are less important.)

The cash generated by the SWB has more than doubled, sourced by increased revenue from consumers.

This increase in cash generation has allowed the SWB to fund an increasing capital expenditure program without increasing debt, while meeting Government dividend requirements.

Figure 8.1 SWB - Capital Expenditure and Movement in Level of Debt

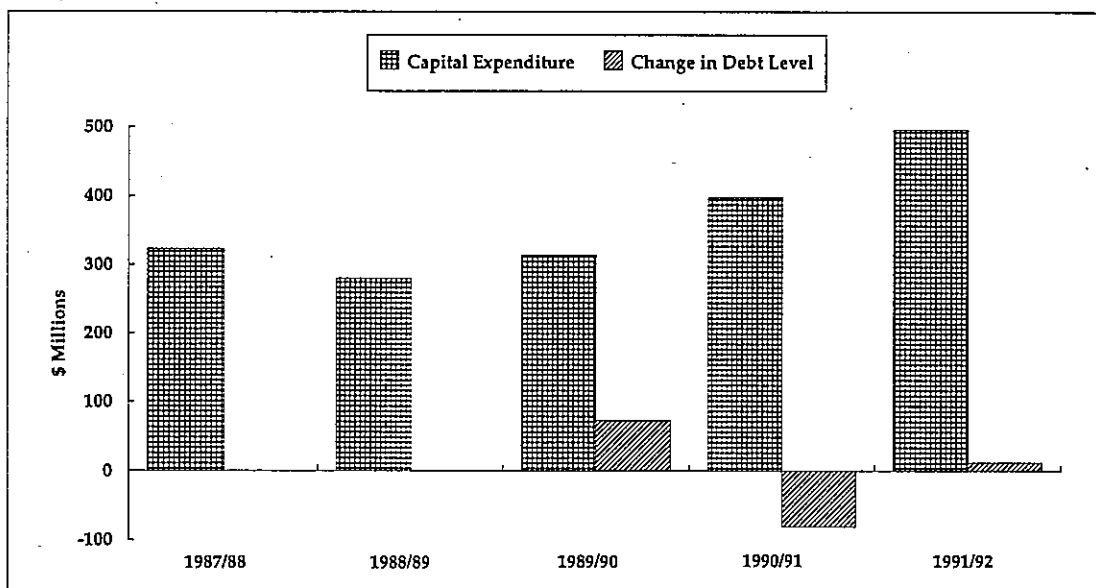
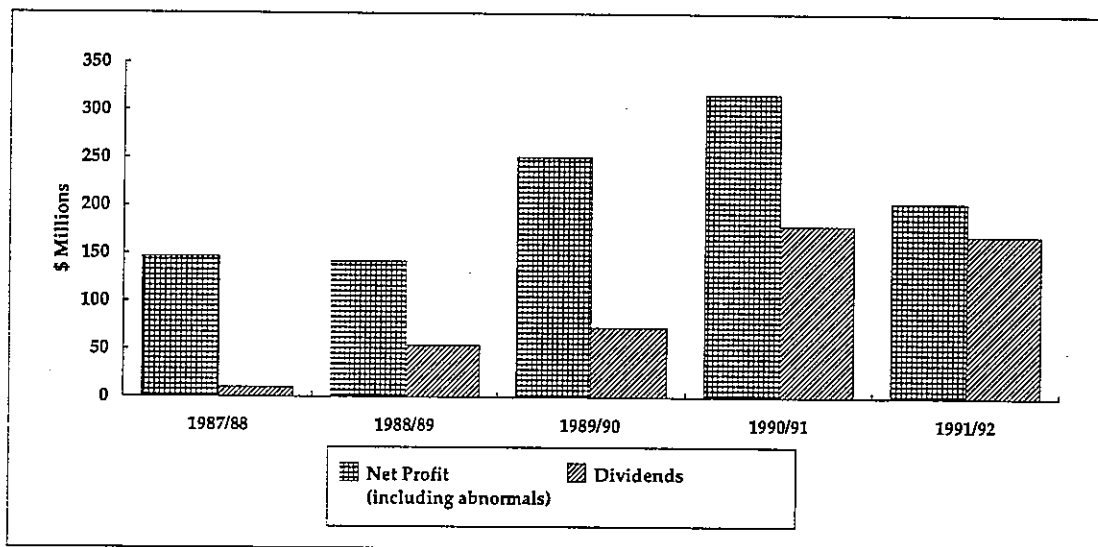


Figure 8.2 SWB - Dividends Paid to the State Government



It would be exceptional for a private sector company to be able to undertake a capital expenditure program of the relative scale of the SWB's and not increase debt. Whilst this has allowed the SWB to retain a AAA credit rating, arguably it has placed an unreasonable burden on present consumers, especially in the business sector via cross subsidies. In summary, over the past few years consumers have been required to fund through increased charges (largely through higher bills):

- ♦ a 12% per annum escalation in operating costs
- ♦ an increasing capital expenditure program without any reliance on new debt
- ♦ an increasing dividend payment

The Tribunal believes that whatever the merits of current-value accounting, the methodology being used to calculate the depreciation expense for the SWB results in an excessive charge against revenue. The cash generated from depreciation is being used to fund a rapidly escalating capital expenditure program, even though there has been limited consultation with consumers or the Government about their willingness to continue funding this program.

Whilst it is not proposed that the SWB revert to historical-cost accounting for depreciation, an approach is required which gives a reasonable outcome. An alternative is to follow the United Kingdom approach whereby the water companies have adopted Renewals Accounting.

Under this approach, the system assets are not considered to have a finite life and are not depreciated. Rather, a charge is made against revenue in each year corresponding to the costs of maintaining the assets. To avoid large variations in these charges between years, the opportunity exists, based on

the future asset management program of a water supplier, to provide an equal amount each year which can be drawn upon as required.

However, renewals accounting has been rejected by a inter-government committee⁴⁹ on the basis that:

"...renewal accounting does not provide information that is relevant and reliable about the assets deployed by the entity and the performance of the entity, and therefore does not achieve the objective of general purpose financial reporting. "

In its submission to the Joint Parliamentary Select Committee on the Water Board the SWB states:

"The Board's depreciation policy is appropriate and is based on current replacement values. This is consistent with Government policy and the principle of inter-generational equity and is necessary to provide for long-life assets appropriately. This policy reflects more closely the cost of renewing assets.

The current depreciation charge matches the projected average annual cost of renewing assets."

The SWB's annual charge for depreciation is projected to increase to over 80% of capital expenditure (excluding developer-funded and free assets) within the next decade. The Tribunal has not been provided with convincing evidence that this is an accurate reflection of the SWB's essential replacement and refurbishment expenditure, particularly if due consideration is given to the technological advances that have occurred since the assets were installed.

Recommendation 8.1: The Tribunal recommends:

- ♦ *community involvement in setting the environmental standards which will drive capital requirements and customers' bills*
- ♦ *a greater willingness on behalf of the SWB to fund more of its capital expenditure program through debt*
- ♦ *recognition in the price setting process of the problems inherent in performance measurement.*

8.3.2 The Hunter Water Corporation

The HWC's total income increased by \$24.4m in nominal terms in the period 1987/88 to 1991/92, or 4.8% per annum compared to a 5.7% per annum increase in the CPI. Trading income (from water, sewerage and drainage charges) increased by 5.0% per annum.

Total expenses increased by \$30.4m over the same period, of which the rise in depreciation charges accounted for \$27.5m. As with the SWB, the increase

⁴⁹ The 1991 Special Premiers' Conference decided to establish a national system for the monitoring of selected government trading enterprises. As part of that process a committee was established to advise on the most appropriate basis for valuation of assets.

resulted largely from the revaluation of assets. The following figures are derived from the 1991/92 annual accounts:

	\$m
Net fixed assets	1557
Asset revaluation reserve	<u>1075</u>
Fixed assets at historical cost	<u>482</u>

A summary of the key figures is shown in Table 8.5.

Table 8.5 Key Financial Data for HWC (\$m)

	1987/88	1988/89	1989/90	1990/91	1991/92
Capital Expenditure	36	34	37	42	53
Debt	272	275	226	220	203
Investments	138	154	132	158	146
Dividend & Tax	2	2	12	5	15
Depreciation	8	10	11	35	36

The HWC's operating expenses increased in total by \$8.8m or 4.2% per annum in the period from 1987/88 to 1991/92.

8.3.3 Gosford City Council

Combined income from Gosford City Council's water and sewerage funds increased by \$15m in nominal terms or 6.8% per annum between 1988 and 1992. The increase in trading income was \$15.8m or 11.3% per annum.

Gosford Council includes government grants and subsidies as income. These comprised 18.4% of the Council's water and sewerage income in 1992 compared to 25.7% in 1988. A major component of this figure is the government subsidy of capital works (50%) which will diminish in absolute dollar terms with the completion of the Council's major works program.

Gosford Council's total revenue expenditure increased by \$16.7m or 8.8% per annum in the period 1988 to 1992. Drainage levy works accounted for \$3.9m of the increase. Calculated on a historical-cost basis, depreciation increased by \$4.3m reflecting the substantial capital expenditure program.

The key financial figures are shown below.

Table 8.6 Key Financial Data on Gosford's Water Operations (\$m)

	1988	1989	1990	1991	1992
Capital Expenditure	27.4	26.3	40	29.1	21.9
Debt (less Sinking Fund)	128.5	126.5	137	139.5	136.8
Investments & Unexpended Loan Funds	2.3	2.0	3.2	4.5	12.5
Depreciation	13.5	14.4	16.8	17.0	17.8

Councils are not subject to dividend or tax payments to the State Government.

8.3.4 Wyong Shire Council

Total trading income increased by \$7.3m or 6.8% per annum from \$24.2m to \$31.5m between 1988 and 1992. This was offset by a reduction in government grants and subsidies of \$8.3m as the capital expenditure program wound down.

Total revenue expenditure increased by \$12.2m (or 10.4% per annum), of which depreciation accounted for \$6.7m. The large increase in depreciation occurred as a consequence of bringing to account in 1991 the joint water supply facilities shared with Gosford Council, which had previously included its share of these facilities in its books as soon as components were commissioned.

The key financial figures for Wyong Council⁵⁰ are shown in Table 8.7.

Table 8.7 Key Financial Data on Wyong's Water Operations (\$m)

	1988	1989	1990	1991	1992
Capital Expenditure	23.4	27.6	18.4	7.1	8.5
Debt (less Sinking Fund)	92.2	88.1	94.8	91.9	83.6
Investments & Unexpended Loan Funds	8.2	0.4	3.9	4.2	2.2
Depreciation	1.5	1.5	1.8	8.3	8.2

⁵⁰ The Tribunal made reference in the Interim Report (Attachment 7) to a document prepared by the Department of Local Government alleging that the Council used the Water and Sewerage Funds to subsidise Council's General Fund. The Tribunal has not independently investigated these allegations and the Council has requested that the Tribunal note the Council's rejection of them.

8.4 Financial projections

The four water suppliers are currently in a very sound financial position. The different geographical characteristics of each location, the regulatory environment and the performance of management will determine their financial future.

The SWB has proposed a high capital expenditure program of \$4.6 billion (in 1992/93 dollars) over the next 10 years, driven by asset refurbishment and environment related expenditure. Significant operating cost savings are achievable which could be applied to reducing cross-subsidies. Any funding gap between projected outlays and funds able to be raised through existing charges will have to be met through expenditure reductions, higher charges, new borrowing and/or contracting-out to the private sector.

Current debt levels do not impose an unsustainable financial burden on the Board. The low reliance on external debt for future expenditure in the Board's submission to the Tribunal, would impose an unfair burden on current customers for the sake of maintaining an unnecessarily high credit rating.

Increased reliance on debt would reduce short-term revenue requirements and increase the opportunity for price reform while still complying with commercially accepted standards of financial prudence.

Under certain scenarios, this might place the dividend payment to the Government under pressure. This might not be inappropriate in the light of the size of the capital works program. To some extent it will depend on the borrowing and productivity savings put in place over future years.

The HWC has also proposed a major capital expenditure program linked principally to asset renewal. Its environmental program, although large, is smaller than the SWB's. Gains have been made through cost reductions but they have been made from a very high base. Additional improvements are considered possible. In addition, the HWC anticipates that it will be able to fully fund its 10-year capital program from internal sources. Its debt levels are currently low.

Therefore, the opportunity exists for price reform to be completed ahead of schedule and below CPI increases in average charges by the SWB and HWC.

Gosford and Wyong Councils have had the financial advantage of having 50% of their major capital works funded by government. Nor are the Councils subject to dividend and tax equivalent payments. However, both Councils have to fund 50% of pensioner rebates. Their infrastructure is relatively new and debt levels have stabilised. Wyong has a more substantial asset renewal program than Gosford. Both Councils already meet current environmental standards.

The opportunity exists for the Councils' charges to be reduced in real terms. This could be applied in the first instance in Gosford to assist the transition of residential customers away from property valuation-based charges for sewerage.

Financial projections for the water authorities are predicated on:

- ♦ general economic activity
- ♦ the current status of their assets
- ♦ expenditure required to satisfy current and future environmental standards (see Chapter 5)
- ♦ opportunities for productivity gains (see Chapter 7)
- ♦ government dividend and tax requirements
- ♦ the pricing regime and consequential consumer behaviour

According to the SWB and the HWC, general economic activity has had a significant impact on commercial and industrial water use and discharge. This could, in part, reflect structural changes in industry which could mean that commercial and industrial demand will not recover to the same extent as the economy picks up.

The impact of usage pricing on demand is also uncertain. As noted in Chapter 3, demand for water does not respond strongly to price increases, in the short-term. Although significant changes have been proposed for the SWB's pricing structure, they are unlikely to have as large an effect as did the HWC's more substantial reforms in 1982.

8.4.1 The Sydney Water Board

In response to the Interim Report, the SWB revised its financial projections in its supplementary 1993/94 pricing proposal in June 1993. While the revised proposals have been substantially adopted, the Tribunal determined that a further reduction of \$20m in revenue is required to enable a greater reduction in existing cross-subsidies.

The principal features underlying the latest projections are:

The financial projections have been adjusted by the Tribunal on the basis of 1993/94 price determination.

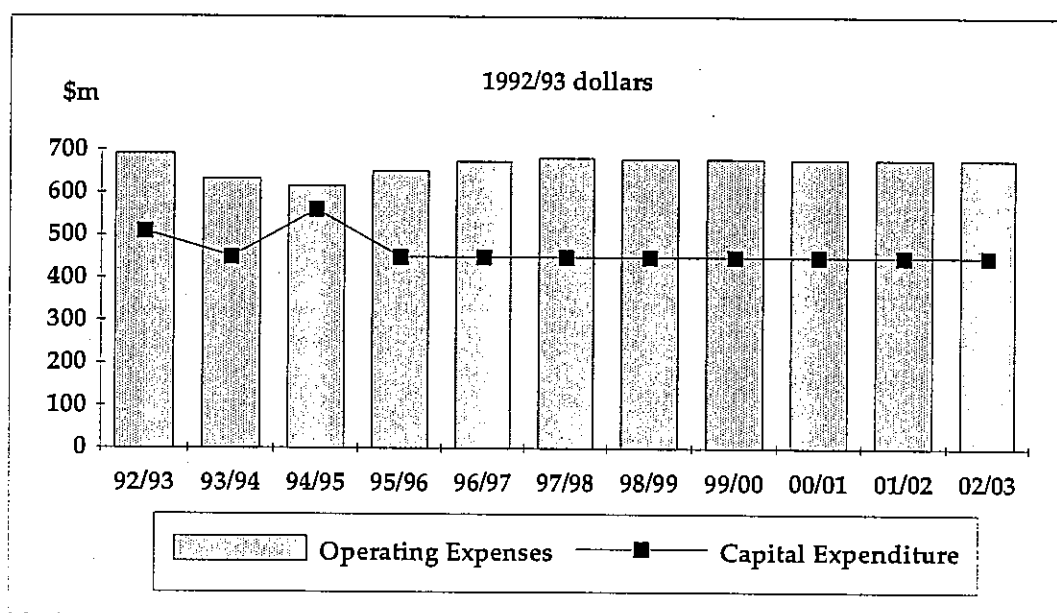
- ♦ a capital program of \$4.6 billion (in 1992/93 dollars) over the next 10 years. This equates to \$5.6 billion, after adjustment for inflation, of which the SWB proposes to fund \$650m or 12% through external borrowing in addition to \$306m through developer contributions.
- ♦ a reducing operating result in the period to 1996/97, when the operating surplus is anticipated to decline to \$28m from the forecast \$123m in

1993/94. This is a consequence of the costs incurred under BOO schemes (+\$92m in 1996/97). Subsequent to 1996/97 the financial results are forecast to improve progressively.

- in 1994/95, a real revenue reduction of 3.8% is assumed (ie a 0.1% nominal reduction when compared to the 3.7% inflation assumption). Subsequent to 1993/94 and 1994/95, income from water, sewerage and drainage charges have been forecast to increase at the rate of the consumer price index, after allowance for system growth.
- the impact on the operating surplus of the adoption of current-cost depreciation is highlighted by the difference of \$279m between current-cost depreciation and historical cost depreciation by 2002/03.
- an increase in working capital (funds held to cover projected cash outlays over a given period) from two weeks (\$42m) in 1992/93 to four weeks (\$119m) in 1993/94 and remaining at that level over the rest of the decade.

These projections from the SWB are illustrated in Figures 8.3 to 8.6.

Figure 8.3 SWB - Expenditure Projections



Note:

1. Operating expenses include provisions and BOO amortisation.
2. Capital expenditure excludes free assets.

Figure 8.4 SWB - Operating Result

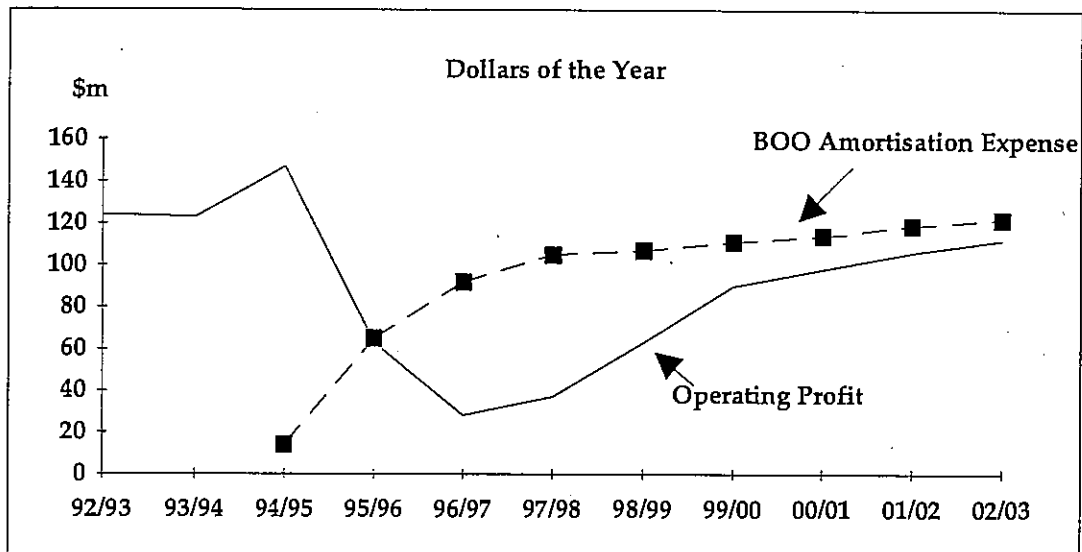


Figure 8.5 SWB - Depreciation

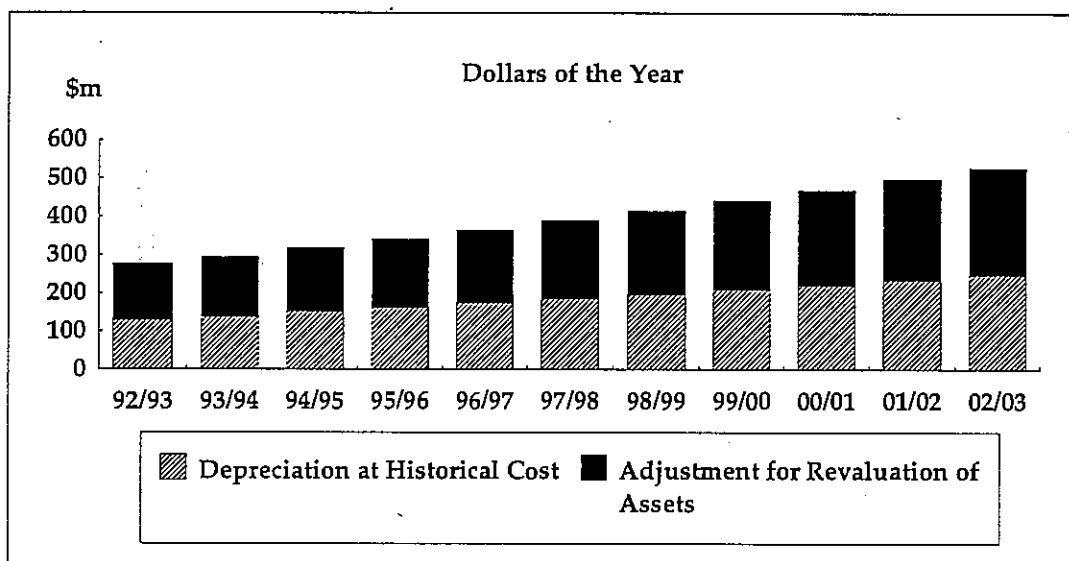
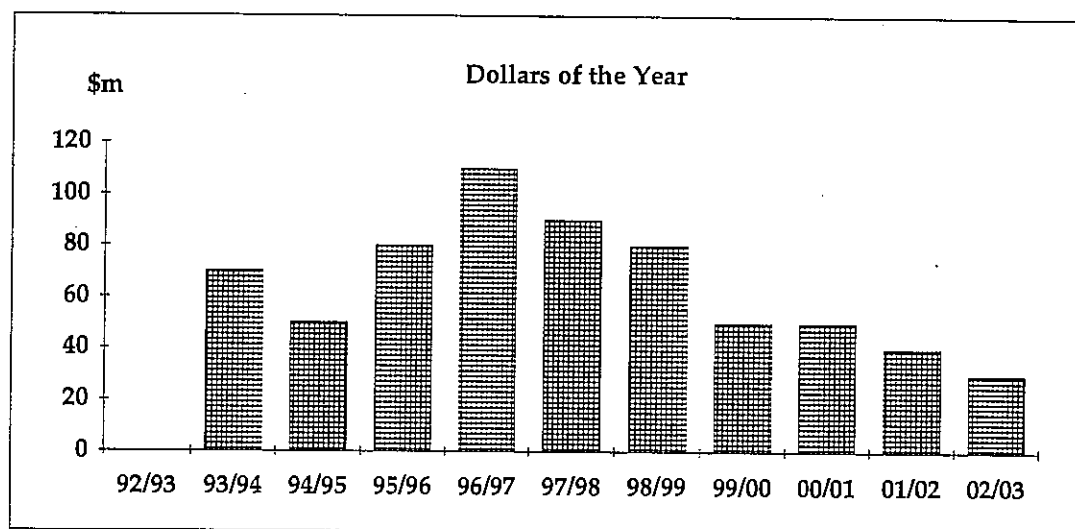


Figure 8.6 SWB - New Borrowing



8.4.2 The Hunter Water Corporation

The following projections have been prepared by the Tribunal on the basis of the Tribunal's own estimates combined with projections from the HWC.

Principal features of the projections are:

- \$16m of the remaining \$17m property rates on non-residential customers to be eliminated by 1995/96. Other charges are to increase in line with the CPI.
- the increased operating costs required to service system growth are to be offset by productivity improvements.
- the HWC will acquire the ability to fully fund the capital works program from internal sources and reduce net debt (debt less investments) by \$34m.
- depreciation on a current-cost basis will account for \$11m of the projected \$19m growth in total expenses.

Projections to the financial year 1999/2000 for the HWC are illustrated below:

Figure 8.7 HWC - Capital Expenditure and Depreciation

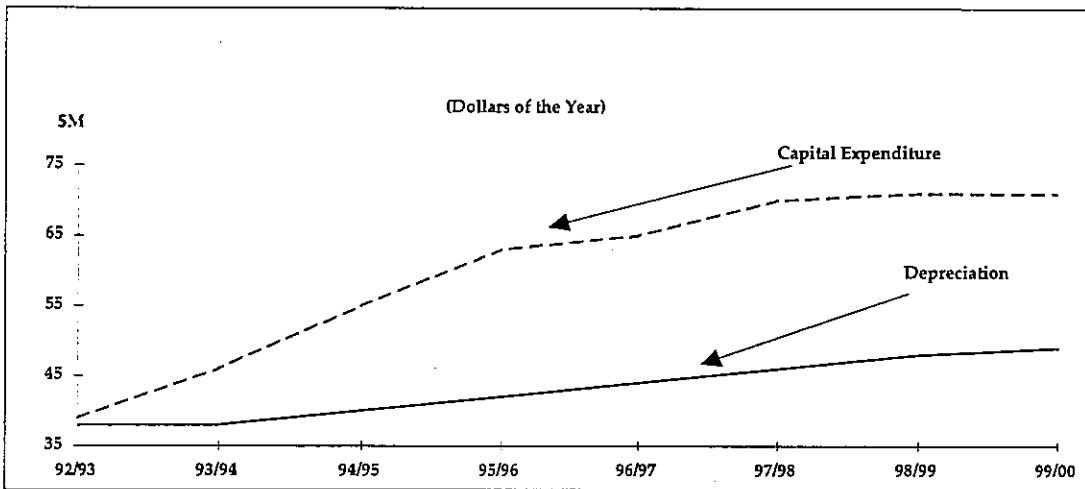


Figure 8.8 HWC - Debt and Investments

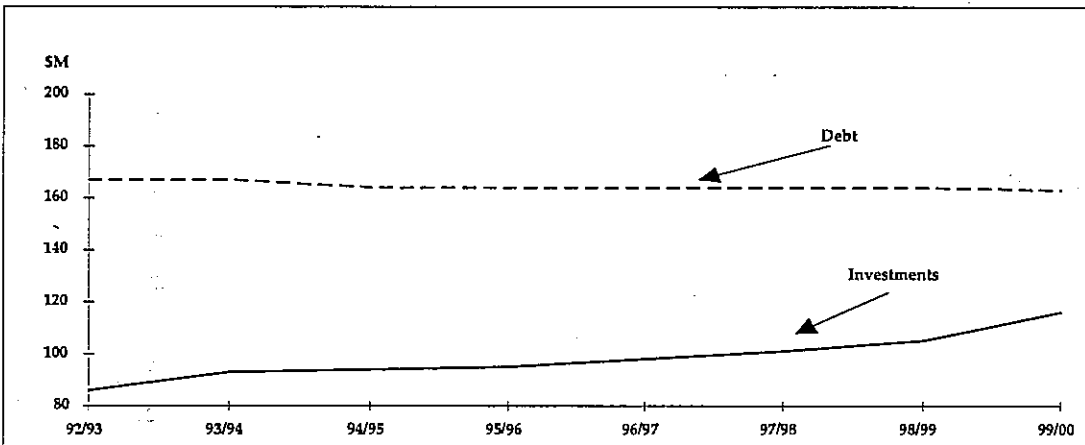
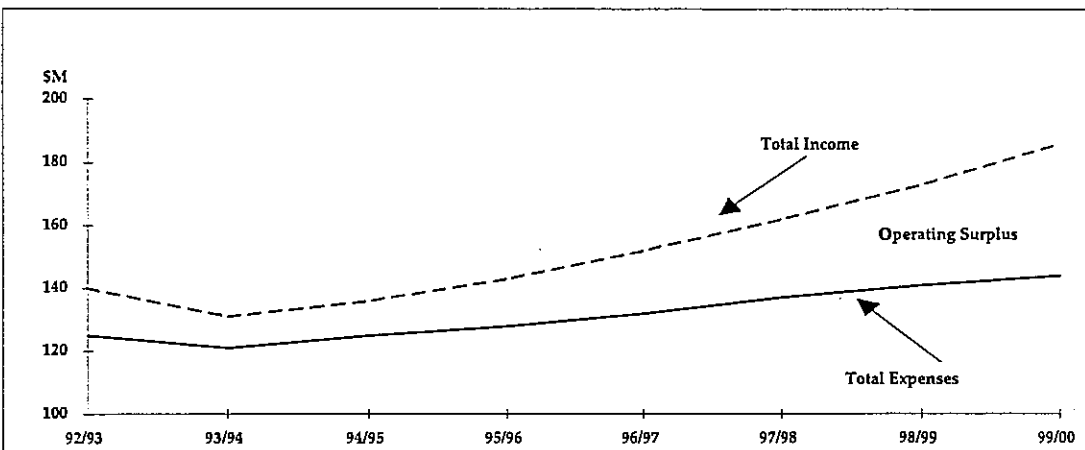


Figure 8.9 HWC - Operating Result



8.4.3 Gosford City Council

The Tribunal has prepared a projected profit and loss account and balance sheet from the information provided by Council. Principal features of the projections are:

- For illustrative purposes, a CPI revenue cap is assumed from 1994 onwards. The expenses are also assumed to increase at CPI.
- Interest payable on loans has been calculated at approximately 8.2% a year, that is, the average interest rate for water and sewerage loans⁵¹. Loan repayments are estimated to be about 50% of the calculated net cash flow for the year.
- No new major capital programs are envisaged. Facilities in place already ensure current environmental standards are satisfied and the major components of the system have the capacity to satisfy the anticipated growth in demand over the medium-term. Developer contributions will substantially meet the funding requirements of new developments.

The key forecast results are shown in Table 8.8.

Table 8.8 Gosford City Council - Summary Financial Forecast

\$m	1993	1994	1995	1996	1997
Total income	58.1	60.5	64.0	67.5	71.4
Total expenditure	43.8	45.0	45.4	46.5	47.3
Operating result	14.3	15.5	18.7	21.0	28.0
Total assets	600.5	624.4	660.0	700.5	741.6
Debts	134.1	130.5	124.0	118.0	106.5
Other liabilities	20.1	24.7	20.7	20.8	21.1
Net assets	446.2	473.6	515.0	561.7	614.1
Capital expenditure	13.7	13.3	10.3	14.0	7.2
Depreciation	9.5	10.0	10.5	11.2	11.7
Return on assets	4.1%	4.1%	4.3%	4.3%	4.4%

Note: The financial projections are prepared on a calendar year basis. Note that from 1 July 1994, Council is required to report on a financial year basis.

The earning forecast suggests that there is scope for real price reductions. Future productivity achievements will add further momentum to the rate of price reduction and the removal of the existing property tax. This is further discussed in 8.5.

⁵¹ Council recently refinanced \$21m of water fund loans at 8.11% fixed for a period of 9 years, and \$98.2m sewer fund loans at 8.23% for a fixed 10 year period.

8.4.4 Wyong Shire Council

Council has provided the Tribunal with a statement of projected income and expenditure in constant dollars. This has been converted into dollars of the year. Principal features of the projections are:

- ♦ For illustrative purposes, a CPI revenue cap is assumed from 1994 onwards. Expenses are also assumed to escalate at CPI.
- ♦ Reduction in loans of \$45m over the next 10 years. Most of this loan reduction would occur in the years after 1997.
- ♦ As with Gosford, the facilities in place already ensure current environmental standards are satisfied and the major components of the system have the capacity to satisfy anticipated growth in demand over the medium-term. Future capital expenditure of \$134.7m (1992 constant dollars) over the next 10 years is needed to cater for growth and to provide drainage services and flood mitigation facilities. Some major refurbishment beyond 2000 is also required.

Again, the earning forecast suggests that there is scope for real price reductions. Council will have a healthy cash balance and a sound liquidity position. The key forecast results are shown in Table 8.9.

Table 8.9 Wyong Shire Council - Summary of Financial Forecasts

\$m	1993	1994	1995	1996	1997
Total income	44.6	43.8	45.7	48.0	47.8
Total expenditure	35.7	36.2	37.5	37.9	39.7
Operating result	8.9	7.7	8.2	10.1	8.0
Total assets	452.7	468.1	493.1	524.9	550.8
Debts	78.3	75.8	74.3	74.5	74.8
Other liabilities	10.2	10.5	10.8	11.3	11.7
Net assets	364.1	381.9	408.0	439.1	464.3
Capital expenditure	11.4	9.6	12.0	16.2	10.0
Depreciation	7.6	7.8	8.2	8.6	9.0
Return on assets	2.7%	2.8%	2.9%	2.8%	2.7%

Note: The financial projections are prepared on a calendar year basis. Note that from 1 July 1994, Council is required to report on a financial year basis.

8.5 Establishing a revenue cap

Reforms of the administrative arrangements and institutional framework for water suppliers are yet to be decided by the Government. Given these uncertainties, setting a medium-term price cap for each water operator is not practicable. Nevertheless, indicative revenue cap figures are discussed below

to assist the operators in developing pricing strategies and business plans for the medium-term.

In establishing the revenue cap, the key considerations are:

- ♦ scope for further cost reduction
- ♦ capital expenditure commitments including requirements to meet environmental standards
- ♦ financial implications including profitability, gearing, liquidity, cash flow position and the value of the business
- ♦ where applicable, financial distributions to the Government
- ♦ revenue impact of the pace of pricing reforms
- ♦ the cost of transitional arrangements to minimise adverse impacts on disadvantaged groups

8.5.1 Sydney Water Board

The following analysis is based on the 1993/94 pricing outcome. It is assumed that the SWB's projected capital and operating expenditure levels will satisfy current and projected environmental standards.

The SWB has applied the rapid increase in revenues and bills in recent years to funding escalating operating and capital expenditure. *The Tribunal considers that the organisation should now enter a period of consolidation and cost containment as it is unreasonable to expect consumers to continue to underwrite these cost increases.*

This period of consolidation is consistent with the need for a greater level of community consultation, in which the community must be given a greater say in the standards it sees as important, the priorities for meeting standards and the extent to which it is prepared to pay for those standards. The challenge for the SWB will be to prioritise both operating and capital expenditure to best reflect the priorities of its customers.

It should be emphasised that this approach is particularly critical over the next three years, in a period where a number of different and sometimes conflicting objectives need to be balanced. For this reason, the discussion that follows focuses on the next three years, rather than the longer and more problematic time-frame of 10 years used by the SWB.

The establishment of a future revenue cap will be based on:

- ♦ the level of future operating costs
- ♦ the scale of the capital expenditure program, the manner in which it should be funded, and the related issue of depreciation expense
- ♦ the level of profitability

Future operating costs

Although there is general acceptance that operating costs should and can be reduced, the more difficult question is how quickly the reductions can be achieved. Operating cost levels since 1989/90 and projected levels are shown in Table 8.10.

Table 8.10 SWB - Operating Costs (\$m)

	Operating Constant	Cost ⁽¹⁾ Dollars of the	Increase constant	Dollars of
	92/93\$	year	92/93\$	the year
1989/90 actual	410	378		
1990/91 actual	488	472	78	94
1991/92 actual	565	555	77	83
1992/93 budget (2)	586	586	21	31
1993/94 projected	531	544	(55)	(42)
1994/95 projected	518	550	(13)	6
1995/96 projected	510	562	(8)	12
1996/97 projected	513	588	3	26

Note

(1) Excluding provisions and BOO schemes.

(2) Based on 1992/93 budget.

In the three years to June 1993, operating costs have increased in nominal terms by nearly \$208m or \$69m per annum. The projected decrease in 1993/94 seems achievable, when compared with the dramatic increase in costs over the past three years. Nevertheless, the Tribunal believes that this cost reduction is the minimum level that should be targeted by the SWB. Greater real cost reductions should be possible in 1994/95 to further unwind the cost blow out in the past three years and address the cross-subsidy penalty on the business sector.

Projected capital expenditure

The SWB is projecting very significant increases in the scale of its capital expenditure program over the next ten years. This program is superimposed on an existing level of capital expenditure, which by private sector standards, would already be judged to be high.

Table 8.11 SWB - Capital Expenditure (Dollars of the Year)

		Capital Expenditure (excluding free assets) \$m
1989/90	actual	314
1990/91	actual	398
1991/92	actual	496
1992/93	forecast	510
1993/94	projected	460
1994/95	projected	594 ¹
1995/96	projected	496
1996/97	projected	516

¹ Due to the Rouse Hill urban development.

Whilst the SWB has reduced its capital expenditure program through a rigorous evaluation of the program and a reassessment of objectives and priorities, the size of its projected capital expenditure is still significant - \$1.55 billion over the three years commencing 1993/94. Of this total projected capital expenditure, current consumers will be expected to fund 73% from current charges. New borrowing over the three years is only \$200m and projected contributions from developers are \$217m.

The Tribunal believes that the funding of capital expenditure should rely to a greater extent on external borrowing, particular when the expenditure is on assets with long lives, and where the benefits of the expenditure will be enjoyed by the community for many years.

Future profitability

Over the past few years, the SWB's operating profit, before abnormal items, has begun to decline. Projected profit levels for the SWB in the next three years (with the exception of 1994/95) continue this trend.

Table 8.12 SWB - Operating Result

		Profit before Abnormals and Dividends \$m
1989/90	actual	251
1990/91	actual	198
1991/92	actual	140
1992/93	forecast	124
1993/94	projected	123
1994/95	projected	147
1995/96	projected	63
1996/97	projected	28

The reductions in 1995/96 have been attributed in part to the establishment of BOO schemes. Although the projected level falls short of profits of the rate of return targeted by the State Government, profits above the levels projected could be difficult to justify in the current environment. Once the challenges of the next three years are met, consumers' bills stabilised, prices restructured and operating costs reduced, it is appropriate that the level of profitability should increase.

Implications for future pricing and revenues

In the Interim Report, the Tribunal proposed that over the two years 1993/94 and 1994/95, a minimum real reduction equivalent to a CPI-10% cap (relative to the retrospective CPI) should be achievable. These reductions would allow the SWB to address a major part of its pricing reform program, minimise the burden of adjustment, and allow the capital expenditure program to be carefully targeted to meet community priorities.

The 1993/94 pricing determination was based on a nominal reduction of 5.7% in charges compared to the increase in the Sydney CPI for the twelve months to March 1993 of 1.1%, ie a real reduction of 6.8%. The price determination for 1994/95 and subsequent years will be dependent upon the outcomes of:

- ♦ the Joint Parliamentary Select Committee on the Water Board
- ♦ the Government's decision on the responsibility for the Clean Waterways Program
- ♦ productivity improvement programs

8.5.2 The Hunter Water Corporation

The HWC's Licence Agreement, (which can be over-ruled by the Tribunal in the setting of maximum prices), applies a retrospective CPI cap. In times like the present, when inflation is expected to increase, this implies price increases which lag behind inflation expectations. Thus, in 1993/94 when inflation is forecast to be 3.5%⁵², a 1.1% inflation cap is applicable, being the movement in the Sydney CPI for the 12 months to March 1993. The determination by the Tribunal for 1993/94 reduced the property rates element by \$8.1m with increases of approximately \$1.1m for the CPI adjustment and miscellaneous increases of approximately \$0.8m.

In its submission on the Interim Report, the HWC states that a 6% real reduction in operating costs per property is expected in 1992/93 and a similar reduction is factored into the 1993/94 budget. However, it is not possible for the HWC to commit to sustaining this rate of improvement beyond 1993/94. While the indicative target of CPI-10% in total for 1993/94 and 1994/95 will bring forward the removal of property value charges, the HWC estimates that

⁵² 1993/94 Federal Budget estimate.

"...the Tribunal's target implies a reduction in the business value by about \$4m relative to previous plans." ⁵³

The Tribunal maintains the view that a minimum real price reduction of 10%, relative to the retrospective CPI, over the two years 1993/94 and 1994/95 years is well within the HWC's capability. Substantial real price reductions are achievable in line with the HWC's efforts to eliminate the property tax component from all customer classes within the next three years. This is to be made possible by productivity gains. The business value will not diminish if the revenue loss is matched by improved cost efficiency.

Given that the HWC's operating licence expires on 30 June 1995, the Tribunal will assess the scope for revenue constraint over the next term as part of the mid term licence review.

8.5.3 Gosford City Council

The Central Coast is one of the State's major growth areas. Council will therefore enjoy a revenue growth from additional service charges for new service connections. In the absence of major cost requirements associated with higher standards, the opportunity exists for real price reductions. Projected productivity savings from workplace reforms also imply a lower revenue requirement.

It is understood that Council has advised its ratepayers that once the major augmentation of its schemes is completed, loan rates to ratepayers will begin to diminish as loans are repaid and financing costs are reduced. By taking advantage of the current low interest rate, the recent refinancing of Council's loan portfolio is expected to generate interest savings to the ratepayers of more than \$10m (in net present value terms) over the next 10 years.

Council is currently assessing the impact of possible changes in price structure and a further submission will be made as part of the price determination process for 1994/95. However, Council has indicated that there may not be the same potential for a reduction in charges in Gosford as exists in Sydney and the Hunter because of its currently lower operational and capital costs per head of population.

The 1994/95 price determination will be subject to the above considerations and the outcome of decisions on the organisation of water operations in the Central Coast area. Overall, there are positive signs that significant real revenue reductions are possible.

⁵³ Hunter Water Corporation (1993), *Submission in Response to the Government Pricing Tribunal's Interim Report on Water*, June.

8.5.4 Wyong Shire Council

In the case of Wyong Shire Council, the situation is similar to that of Gosford Council. Its asset base is relatively new and it will also enjoy a steady increase in the number of customers. There are no major cost pressures. Pricing reform is currently further advanced than for the SWB or Gosford.

During the public hearing on the Interim Report, Council suggested that a 1.5% real reduction a year per assessment is achievable. The extent of future price reductions and revenue constraints will be affected by potential productivity savings generated from work place reforms and any decisions on institutional arrangements for the future provision of water services on the Central Coast.

Recommendation 8.2: The Tribunal recommends real price reductions for each of the water suppliers over the short to medium-term. These price reductions should be made possible by productivity gains. The size of the reductions will vary amongst the water suppliers based on their current level of efficiency and financial viability.

8.6 Summary of recommendations

The Tribunal will provide a pro forma return to each of the water suppliers to encompass the minimum financial and statistical data required for pricing submissions. A draft of the return will be given to the suppliers by 1 December 1993 with the intent that the format of the return be finalised for use by those suppliers submitting pricing proposals for decisions subsequent to 1 January 1994.

The adoption of rate of return targets is contingent upon the resolution of income and asset measurement problems. The total elimination of a dividend from the SWB to the Government to reduce cross-subsidies, is not practicable in the Government's current budgetary position. However, the SWB's profits and the dividend to the Government cannot be insulated from SWB inefficiencies. The Tribunal proposes that cross-subsidies largely be reduced from funds made available by efficiency gains.

The Tribunal recommends:

- ♦ *community involvement in setting the environmental standards which will drive capital requirements and customers' bills*
- ♦ *a greater willingness by the SWB to fund more of its capital expenditure program through debt*
- ♦ *recognition in the price setting process of problems inherent in performance measurement*

The Tribunal recommends real price reductions for each of the water suppliers over the short to medium-term. These price reductions should be made possible by productivity gains. The size of the reductions will vary amongst the water suppliers based on their current level of efficiency and financial viability.

9 WATER CHARGES

9.1 Introduction

Of the services considered in this report, water supply and use is the most amenable to usage-related pricing. Most water suppliers impose usage-related charges to some degree, although there remains scope for expansion of this component within the pricing structures of many suppliers. Important issues arise in regard to the specification of access charges for water and sewerage services and the future of property rates as a means of charging for water.

This chapter:

- outlines the principles for pricing of water supply and use
- examines the application of these principles to the SWB, the HWC, Gosford, Wyong and other country town water supply schemes
- provides recommendations for the direction of price reform

9.2 Pricing principles for water

Prices can be a particularly important and effective instrument for obtaining better use of existing resources. A usage price which is too low will encourage over-use of water with consequent misuse of natural, capital and labour resources. Cross-subsidies can discourage otherwise competitive industries. Prices can also be used for equity goals, but are often relatively ineffective as distributional policy instruments.

In theory, efficient water prices would require that:

- i all customers would pay a usage charge for the marginal kL of water consumed which was equal to the marginal cost of providing the water (including environmental costs)
- ii regional cost variations would be signalled either through differences in annual usage and access charges or through developer charges
- iii the usage charge would vary between seasons to reflect variations in the marginal costs of supply
- iv all customers would pay the same access charge for the same size meter (subject to regional cost variations)
- v charges would vary with meter size to the extent that differences in pipe size affect network and capacity costs

- vi access charges would be set to recover the difference between the revenue raised from cost-reflective usage charges and the total costs of providing water services

The statement of these principles in the Interim Report attracted a number of responses. In its submission, CHANGE suggests the possible elimination of access charges through higher usage charges and developer charges. However, this raises concerns that such charges may be too high. Network costs are substantial and the full inclusion of these in usage charges could not be sustained in terms of either efficient resource use or equity. A combination of access charges and user charges is common to a number of other network-based services such as telecommunications.

Conversely, NCOSS cites an article⁵⁴ which argues that access charges may become a "disguised form of taxation". In this view, prices would be set at marginal costs with the resulting revenue shortfalls funded from general taxation or a tax-like instrument such as rates.

This view has a long history. The arguments which have been put to counter it are that:

- ♦ if full costs are not recovered through pricing, there is no assurance that the value to the users justifies the services provided. The resources used might yield better value to the community in other uses.
- ♦ operation of services at a loss leads to the redistribution of income on the basis of the amount of the service consumed. Such redistributions are disguised and may not be well-targeted.
- ♦ increasing the amount of tax revenue to be raised, increases the costs imposed on the community to raise the taxes.
- ♦ in practice, the ongoing operation of services at a loss, or the mixing of tax and commercial objectives, can adversely affect incentives for efficient service delivery.

The Tribunal considers that principles (i) - (vi) above are appropriate guides for the design of water pricing policies. However, *the practical application of these principles must balance efficiency gains against administrative costs and distributional impacts*. Management of distributional impacts may involve general government expenditure and revenue policies, community service obligations (CSOs) and the phasing of price changes. Decisions on general revenue and expenditure policy and CSOs are the responsibility of government and are outside the province of the Tribunal. The phasing of price changes is a matter for the Tribunal's recommendations. In reaching judgements on the implementation of the changes proposed, the Tribunal will

⁵⁴ T M Dwyer & J T Larkin; "Cascading of Indirect Taxes: Problems and Policy Issues", Australian Tax Research Foundation, Indirect Tax Workshop June 1993.

have regard to the Government's decisions on transitional or long-term compensation through CSOs and general expenditure and revenue policies.

As the OECD points out:

"There are certain dangers in asking for too much from a pricing system. The first point to recognise is that, in practice, elasticities of demand for the water services may be so low that sophisticated charging systems are simply not worthwhile. That is, the costs of establishing, operating and updating complex tariff structures may simply be too high."⁵⁵

It should also be remembered, however, that new dams and other infrastructure can require large capital expenditures and impose high environmental costs. Hence, the deferral of new dams through more appropriate pricing policies can yield substantial gains for society. The experience with price reform in the Hunter indicates that a relatively simple and unsophisticated pricing policy can achieve this.

9.3 Water pricing in practice

9.3.1 Core pricing structure

The simple two-part tariff consisting of an access charge and a usage charge is widely accepted as a practical, effective and efficient pricing structure. The usage charge is set on the basis of the cost of supplying an additional unit of water, while the access charge should at least equal customer-related fixed costs plus the costs of providing and maintaining the network and the customer's connection to it. In practice, the access charge is commonly used as a balancing item to ensure adequate revenue during long periods of excess capacity when the revenue from charges based on marginal costs alone would be insufficient.

Implementation of such a pricing structure was a key recommendation of the Industry Commission's report on water services⁵⁶. This principle is supported by the Tribunal.

Ideally, all customers should face the same schedule of access charge and usage charges, but the access charge should vary according to meter size to the extent that larger meters impose larger network costs. At present non-residential customers in Newcastle pay higher access charges than residential customers.

Multiple block tariffs are common; the HWC has a decreasing block tariff (the usage charge decreases for higher levels of water usage) and the SWB had an increasing block tariff until the 1993/94 price determination.

⁵⁵ Organisation For Economic Co-operation and Development (OECD), *Pricing of Water Services*, 1987, Paris, p22.

⁵⁶ Industry Commission, *Water Resources and Water Waste Disposal*, AGPS, Canberra, 1993.

The HWC has suggested that there may be some economies of scale in supplying large users, which should be reflected in prices. If there are economies of scale, arguably these may be best included in an access charge based on meter size. Other arguments for such discounts are that large users have relatively smaller peaks in demand and that discounts for large users can promote industrial development. In principle, direct industrial incentives funded from general government revenues are a better solution. The Department of State Development supported this view at the Tribunal's public hearings. A discount on the price of water usage for large users does not appear an appropriate means of adjusting for the relative size of peaks in demand.

The pricing model recommended by the PWD provides for a discount on usage rates for normal levels of household consumption of water (ie an increasing block tariff).

Decreasing or increasing block charges (including free water allowances) can play a useful role in smoothing the process of adjusting pricing structures. The Tribunal supports their use as a transitional measure. However, the Tribunal supports the movement away from multiple block tariffs in the long-term. Multiple block tariffs are not cost-reflective and are more complex. Increased complexity can distort or dilute the pricing signals given to customers. Attitudinal surveys by the SWB suggest that customers tend to focus on the average usage price rather than the marginal usage price and perceive that there are few benefits from saving water.

Public health arguments have been used to support increasing block tariffs or free water allowances. Clearly there is an element of public good in water supply and sanitation, which have been vital to improving health standards and life expectancy. The public health benefits raise two issues. Firstly, the costs of the minimum services which provide public health benefits could be recouped from the beneficiaries. This is essentially an equity judgement based on the principle that those who benefit should pay. Secondly, prices should not impose public health costs by discouraging connection to reticulated supplies or discouraging consumption of water for minimum requirements for health and hygiene. It is sometimes argued that this requires subsidisation of the usage charges for an initial block of water consumed.

For the most part, the beneficiaries are the customers of the supplier, that is, the benefits are internalised to the supplier's customers. If so, the access charge may be an appropriate way of distributing the network costs for this public health benefit.

The argument that the usage of water for minimum public health benefits should be subsidised, is flawed. Firstly, the consumption of minimum levels of water usage for public health purposes is infra-marginal. At any plausible

usage price, all customers use more than this basic amount. Hence, usage pricing would not have any effect at all on the public health benefits of the water system. Due to the periodic nature of meter reading and billing, the basic component of water usage would be used up early in the period and the consumer would perceive that all units consumed, basic or otherwise, would face the standard charge for the rest of the period.

Proposal 9.1: The Tribunal proposes that, where possible, water suppliers move to a simple two-part tariff with a uniform, flat-rate usage charge. The phasing of these changes will need to be managed to reduce adverse distributional effects during the transition to new pricing structures.

9.3.2 Seasonal and time-of-day pricing

The Industry Commission has recommended that water suppliers should investigate the benefits of seasonal pricing and time-of-day pricing. 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.

Whilst seasonal charges have resulted in reductions in water usage in the USA, the OECD review suggests that problems in implementing summer rates can be considerable. This experience emphasises the need to identify the effects of seasonal and time-of-day demands on costs before any commitment is made to pricing on this basis. On the available information, seasonal or time-of-day pricing appears to be of second order importance.

The major components of the marginal costs for water supply are the capital costs of the next new dam or an increase in the capacity of existing dams. The timing of the need for the next increase in capacity appears to depend on demand over a period of a year or more. Seasonal or time-of-day peak demands do affect capacity requirements for components of the network between the headworks and the customer but these effects have not been quantified adequately.

The HWC's experience suggests that usage changes tend to flatten peaks in demand as ex-house⁵⁷ summer water use responds more strongly to prices. In the Hunter, peaks in consumption are now in the order of 50% of those recorded pre-1980.

Proposal 9.2: In the absence of data indicating significant cost savings, the Tribunal does not recommend seasonal or time-of-day pricing, at this stage. However the Tribunal would not wish to prevent individual water suppliers

⁵⁷ Ex-house water use refers to water used by residential customers outside the households for example, watering the garden.

from introducing seasonal charging where the supplier can demonstrate net benefits.

9.3.3 Regional or zonal pricing

In practice, regional variations in costs for water supply in existing developments do not appear substantial. In the case of the SWB, operating costs for water supply are estimated to be between 10-20 cents/kL of the marginal costs of water of 50-70 cents/kL. Operating costs, such as pumping costs, may vary between different locations, but their impact on total costs appears to be relatively small. There may be discrete areas of operation where operating costs vary more substantially or which draw upon different bulk water supplies. The Port Stephens or Illawarra regions may be examples, but the Tribunal would require further evidence of this. At this stage, region-based pricing for annual charges is not supported.

Locational cost differences may be substantial for new urban development where new investment is required. Differences in the costs for new areas should be incorporated in the developer charges policy to provide a more effective signal regarding the relative costs of new developments in different regions.

Proposal 9.3: In the absence of any clear evidence to the contrary, the Tribunal proposes that annual residential charges for water supply within a supplier's area of operation should be uniform.

In its submission on the Interim Report, the SWB expresses the view that:

"the differing costs of treating and transporting water to different localities should, where appropriate, be reflected in different charges/prices to the various localities. This is particularly important for new urban development areas which are now coming on at much higher cost to the Board."⁵⁸

Further, the SWB is of the opinion that common charging leads to efficiency losses.

The Tribunal is concerned about the impact on existing customers who have made location decisions on the basis of expected uniform charges. With respect to new developments, the Tribunal believes that developer charges will provide the necessary locational signals.

9.3.4 Meter size-based access charges

Each of major water suppliers assesses the access charges for non-residential customers on the basis of meter size. The SWB and HWC increase their charges in proportion to the area of the cross-section of the pipe or meter size. The charge for a 50mm meter is 6.25 times that for a 20mm meter.

⁵⁸ SWB, *Comments on Water: An Interim Report*, p20.

Two arguments can be used to support this approach. Firstly, larger potential or actual draw-downs or discharges may require increases in the capacity of the network. To the extent that the potential draw-downs affect system capacity requirements, the costs of augmenting the system and maintaining and replacing existing assets should be reflected in meter size charges. The application of this approach raises a number of questions.

Whether such costs are directly in proportion to meter size appears questionable. The impact on the required network capacity will become less certain as the distance from the customer's meter increases. Furthermore, there are likely to be significant economies of scale in the provision of extra capacity within the system.

The distinction between costs determined by potential drawdowns and costs determined by other factors such as actual water consumption over the billing period or seasonal and time-of-day peaks is uncertain. In practice, the meter size charge may be a de facto peak load charge. If so, any move to seasonal or time-of-day pricing would require a review of the access charges.

The SWB and the HWC levy service charges for metered fire services on the same, or a similar, scale as normal water services. However, the HWC also charges unmetered fire services on the same scale. The SWB does not levy access charges on sealed unmetered fire services. Given the different nature and probability of the use of fire services, it seems unlikely that they make similar demands on the system. There may also be a public good element to fire services; an owner may benefit as much from the fire service in the surrounding building as that in his own.

The second argument for meter-based charges is that they represent an equitable means of allocating costs which would not be recovered through the usage charge or other charges. There is no guarantee that cost-related pricing for a service such as water, which may have network economies, will meet the revenue needs for the ongoing operation of the enterprise as a whole. In these cases access charges can be used to provide sufficient revenue to meet the financial requirements of the supplier. The allocation of this residual element in the access charge will depend on judgements about equity and capacity to pay.

Some customers have raised concerns about meter-based charges. For a number of customers in Sydney the introduction in 1992 of access charges for water and sewerage services based on water meter size resulted in substantial increases in bills. These increases are seen as being outside their control since they are not based on the amount of water consumed.

In its submission to the Tribunal the NSW Golf Association indicates that the majority of golf courses had several meters to cater for the size of the

property. It is claimed that being charged an access charge for each meter, places an unfair burden on them.

Golf courses and the like may have significant demand-management opportunities which would reduce their bills. However, part of their concern relates to the payment of a sewerage access charge on the basis of each water meter, while they are not given credit for the positive contribution they make to the solution of stormwater and run-off problems. It seems inappropriate for sewerage access charges to be levied on meters where there are no wastewater discharges. There is scope for negotiation on discharge factors but customers may not be sufficiently aware of this. Through the expanses of open land and their own water conservation systems, golf courses may also contribute to the management of stormwater problems. Recognition of this in pricing arrangements is desirable but may be difficult to achieve in practice.

Proposal 9.4: The Tribunal agrees with the concept of varying access charges according to meter size where this reflects cost differences, but has concerns about the current scale of charges. It proposes that suppliers review the current scales for access charges before the next annual determination. The review should seek to determine the extent to which current charges reflect identifiable costs.

9.3.5 Property value-based charges

As discussed in Chapter 3, suppliers have sought to reduce their reliance on property rates. The Tribunal also believes that rates are an inappropriate means of pricing a largely commercial service. The phasing-out of property rates would help reduce the current confusion of objectives for the water suppliers and make the signals sent to customers simpler and clearer. Continuation of property-based charges in the long-term would continue the position where the suppliers are asked to provide water services on a commercial basis, yet are also an arm of tax policy.

The SWB currently levies property rates on the basis of 1980 values and does not charge property rates for new properties. A long-term commitment to property rates would require a review of current property valuations and the inclusion of new properties which have been excluded to date.

Residential property rates have a limited effect on the use of water resources. Housing or water use decisions are unlikely to be affected significantly. Non-residential property rates may have a more significant effect on resource allocation. These rates may affect the costs and competitiveness of business. They may also distort decisions on land use and location. However, to the extent that rates are "capitalised" in the value of properties, these effects will be lessened.

Although the Tribunal supports the phasing out of property rates, the Interim Report proposes that suppliers give a lower priority to the removal of

property rates on the residential sector. Some submissions, such as that of the Property Owners Association express a view that this should be given a higher priority. The Tribunal's view reflects a judgement concerning the relative effects on resource allocation and the need to manage the impacts on the residential sector through the sequencing of changes.

Proposal 9.5: The Tribunal proposes that the property rates element in water charges should be removed over time. Removal of property rates on non-residential customers should be accorded a higher priority than the removal of residential rates. The phasing of both will depend on the capacity of suppliers to make efficiency gains and on the alternative claims made on the benefits of those efficiency gains.

9.3.6 Customer classifications

The SWB and the HWC differentiate between residential and non-residential properties in property rates and, in the case of the Hunter, in access charges. This distinction has led to concerns about properties such as boarding houses and private hostels. In their submissions to the Tribunal, representatives of these customers argue that they provide low-cost accommodation and are consequently residential properties. They are currently charged non-residential rates.

In the medium to long-term this problem would be reduced as residential and non-residential charges were aligned. The issue is less critical in the Hunter where differences in prices are less substantial and will be largely eliminated over the next three years under the HWC's current strategy. The problem will remain significant for Sydney in the medium-term. Whilst there may be some inequity in the current schedule, it does not seem appropriate to compound the current problems in the pricing systems by shifting more customers on to residential rates.

The Tribunal notes that the government has provided land tax relief to boarding houses with low-income tenants. This appears an administratively complex arrangement, but the government may consider that a similar arrangement could be appropriate for providing transitional relief for boarding houses and private hotels.

9.3.7 Accuracy of meters

Greater reliance on usage charges focuses more attention on the accuracy of meters.

The probability of a domestic meter reading fast by over-recording consumption appears low. A survey of 500 domestic meters by the SWB found that only 8% of the meters read within the required accuracy of $\pm 2\%$. Over 90% read more than 2% slow, with the average reading 6% slow at high flows. On this basis, a program of meter replacement may be financially

viable if usage prices reflect costs fully. The decision to undertake such a program is a matter for each water supplier. However, the costs of meter replacement should be borne by the supplier, as at present, rather than the customer.

9.4 Application to the SWB

Application of these principles to the SWB would require:

Residential

- a single rate usage charge. The 1993/94 price determination introduced a uniform usage charge of 65 cents to replace the previous inclining block rates. Estimation of marginal costs is necessarily imprecise, however the usage charge is within the range of estimates available to the Tribunal.
- a flat access charge and removal of the property value charge. The new charge should be set to recover the difference between the total costs of providing water to the household sector and the revenue from usage charges. On current estimates, removal of the property rates on households would increase the access charges significantly by almost \$50 for most households even if the proposal was revenue neutral for households. Removal of the property rates on business and the cross-subsidy between households and businesses would have a much larger effect. Unless substantial productivity gains were achieved, this could increase household bills by \$250 per annum. Clearly, such a large change could cause substantial hardship for some. It is essential that changes be phased in and offset by either large efficiency gains or alternative government policies such as CSOs or a targeting of assistance through general revenue or expenditure policies.

Non-residential

- a single rate usage charge.
- a flat access charge and removal of the property value charge. The current scale of meter size charges needs to be reviewed to ensure they are cost-reflective.

Together, these steps would substantially change the composition and size of water bills. Given the magnitude of these changes, transitional arrangements would be necessary and the desired changes would need to be prioritised. Perhaps the key factor in these transitional arrangements would be the priority to be given to the removal of the property value-based charge. As discussed above, the Tribunal believes priority should be given to the removal of property rates on business.

Proposal 9.6: The Tribunal proposes that the SWB adopt the structure outlined above as a goal to be achieved within five years. The first priority is to set the usage charge at a more realistic level for small volumes of water consumption. The schedule of meter-based charges for non-residential customers should also be reviewed as a high priority. Removal of the property rates imposed on residential customers is an essential element of long-term pricing goals. However, it should be given a low priority during the transitional period. Removal of property rates from non-residential customer's bills should be given a higher priority.

In view of the magnitude of these changes, non-residential rates will need to be phased out gradually. More rapid productivity gains will be required to offset these impacts.

The Tribunal notes that in its submission on the Interim Report, the SWB supports the above Proposals, with the exception of Proposal 9.3, as noted earlier.

9.5 Application to the HWC

The HWC pricing system for water already closely matches the principles outlined above. The adjustments required are largely fine-tuning and would involve:

- ♦ a review of current usage charges and the removal of the discounted usage rate for large water users. Cost estimates by Travers Morgan suggest that the current rate may be too low. However, these estimates are indicative and were constrained by the limited data available. Deferral of the Grahamstown augmentation would reduce this estimate substantially.
- ♦ a review of the scale of meter-based charges for non-residential customers. There is some concern that the current charges may not reflect costs.
- ♦ elimination of the remaining property rates imposed on non-residential customers.

As the HWC points out in response to the Interim Report, these changes are refinements to a largely sound pricing structure. Implementation will depend on a weighing of the benefits against the administrative costs and the impacts of these changes.

Proposal 9.7: The Tribunal proposes that the HWC adopt these principles as pricing reform goals for the next three years. An early priority should be the review of access charges for non-residential customers.

9.6 Gosford/Wyong

The key issue for Gosford and Wyong Councils is the removal of the current free water allowance of 200 kL per annum. Although the usage charge of

65cents per kilolitre of consumption above 200 kL appears plausible, it is desirable that it be based on an analysis of costs.

Gosford and Wyong Council have both rejected the proposal in the Tribunal's Interim Report for the removal of the 200kL allowance. Gosford considers that the allowance can be justified for public health reasons and to encourage maintenance of public access such as nature strips. Wyong is concerned that if access charges are maintained at current levels, removal of the free allowance would reduce the usage charge to 32-33 cents/kL. The alternative of adjusting the access charges would result in significant benefits for "week-enders" which are 15-20 per cent of the customer base.

Proposal 9.8: The Tribunal proposes that the Councils:

- *examine and report on the scope for reductions in the 200kL free water allowance.*
- *undertake an analysis of the marginal costs of water supply and adjust the usage rate to better reflect these costs.*

9.7 Country towns

The Tribunal's Interim Report proposes that the principles outlined above, including that of uniform usage charges, should apply equally to country towns. Customers would benefit from subsidies under the County Towns Water Supply and Sewerage Program (CTWSSP) through lower access charges. In response, the Local Government & Shires Association and the PWD support continued use of inclining block tariffs. The PWD⁵⁹ states that:

- i the CTWSSP is intended to assist councils to provide a basic water supply for residential use. A basic water supply is defined as "normal internal water use (about 200kL per annum) and limited watering of lawns and gardens."
- ii a uniform usage charge based on long run marginal costs may be considerably in excess of \$1 per/kL. "The result of such a usage charge would be that most customers would restrict water usage to internal usage only... which would frustrate the objectives of the Government's CTWSSP."
- iii to overcome this, country councils should be able to use an inclining block tariff. The usage charge for the first 400kL of water would be set below long run marginal cost.

The Tribunal notes that it may be more equitable to pass the subsidy on solely through lower access charges. If it is built into the usage charge, customers

⁵⁹ PWD, *Submission on Water: An Interim Report*, pp C1.

who consume, say, 400kL of water will benefit more than customers who use less water.

The Tribunal also considers that 400kL is above a reasonable definition of a "basic water supply." It notes that average residential consumption in the Hunter is 220kL (including external use) and questions whether external uses of water such as gardening should not reflect the true scarcity value of water in that particular location. The Tribunal is concerned that such a high allowance may encourage excessive use of a scarce resource.

However, the Tribunal accepts that some regional communities may wish to maintain a level of subsidy for low levels of water consumption.

Proposal 9.9: The Tribunal proposes that the PWD or an 'Office of Water' (see Chapter 17) should review the current guidelines for country town schemes to support the phased introduction of two-part or inclining block tariffs. If inclining block tariffs are to be used, the step at which the top rate cuts in should be reduced, over time, to no more than 200kL per annum.

9.8 Summary of recommendations

Water should be charged on the basis of a cost-reflective, two-part tariff. The phasing of these changes will need to be managed to minimise adverse distributional effects during the transition to new pricing structures.

The usage charge should be uniform and there should not be a free water allowance. Subject to further evidence regarding the effects on costs, seasonal and time-of-day pricing is not recommended at this stage.

Access charges based on meter size should be reviewed to ensure that the charges levied are cost-reflective.

Property rates should be phased out over time, subject to adequate adjustment arrangements.

The SWB should adopt this plan as a goal for price reform over the next five years.

The HWC has made substantial progress already and should adopt the goal of removing the discount on large water usage and property rates within three years.

The PWD or an "Office of Water" should amend the current guidelines to support the phased introduction of simple two-part tariffs or inclining block tariffs with reductions to no more than 200 kL per annum in the level of consumption at which the usage rate fully reflects costs.

10 SEWERAGE CHARGES

10.1 Introduction

Pricing for discharges of wastewater is arguably a more complex problem than pricing the supply and usage of water. Obviously, there are costs in providing access to the sewerage network which the access charges should at least cover under cost-reflective pricing. Pricing to reflect the costs of discharges is a much more difficult matter, due to problems in measuring and assessing costs.

This chapter:

- outlines principles for the efficient pricing of sewerage services
- examines the application of these principles to the SWB, the HWC, Gosford, Wyong and country town water supply schemes
- provides recommendations for price reform

10.2 Pricing principles for sewerage charges

The costs of transporting, treating and disposing of sewage are substantial. In both Sydney and the Hunter, the cost of disposing of sewage varies substantially according to location. Travers Morgan has estimated that the marginal cost of transporting and treating a kilolitre of waste from Sydney and treating it at an inland treatment plant is \$1.22 compared with 29 cents if it was discharged to an ocean plant. The comparable estimates for Newcastle are 64 cents and 22 cents. It should be stressed that these are indicative estimates only. Further work needs to be done to overcome data limitations. Assumptions regarding the timing of future capital works are critical.

Cost levels and the variations in cost suggest that sewerage pricing is an important issue. Where demand is responsive, cost-reflective prices may provide significant efficiency gains by encouraging the better use of resources. While non-residential customers are responsive to wastewater prices, residential customers in existing urban areas may have limited ability to respond to prices.

Theoretically, cost-reflective pricing requires that:

- the price for the marginal kL of sewage discharged mirrors the marginal costs of transporting, treating and disposing of the sewage
- differences in the total costs of providing sewerage services in different locations are fully reflected in the total bill

The first condition signals to the customer the costs of treating and disposing of their discharges, given their location. The second, signals to customers the costs of providing the services in different locations. This enables these costs

to be reflected in locational decisions. This condition is also a requirement of the principle that each group should pay the full costs of providing services in order to minimise any cross-subsidies.

However, the application of these principles to the *household* sector is particularly difficult. Discharges are difficult to measure and households have limited opportunities to respond to usage prices. In these cases a uniform access charge may be the most feasible option.

As noted in Chapter 9, there is a public good benefit from providing a basic level of water and sewerage services. Arguably, it is appropriate for the beneficiaries to fund such services rather than the customer. However, in practice the customers may also be the primary beneficiaries of the public health benefits. If so, the basic services required for public health benefits may best be funded from the access charge paid by all customers.

The environmental benefits from improved treatment standards for cleaner rivers and beaches are also a benefit for the community as whole. As discussed in Chapter 3, the costs of meeting the standards should be built into the charges paid by the users of the service. This is in accordance with the principle that the polluter pays, and provides appropriate signals to the users of these services.

10.3 Sewerage pricing in practice

10.3.1 Determinants of sewerage costs

The costs of transporting, treating and disposing of wastewater depend on:

- ♦ the volume of wastewater transported and treated
- ♦ the type, mass and concentration of pollutants in the wastewater
- ♦ the location of the discharge of treated waste and the standards set for discharge at these points
- ♦ geographical factors such as the density of development and terrain.

The relative contributions of the volume of wastewater and the pollutant loads to sewerage costs is an important element in the design of pricing structures. The Tribunal's Interim Report indicates that this is also a matter of some debate and responses to the report reinforce this.

In one view, the volume of wastewater is the primary determinant of the design capacity of the treatment plants. In the UK, stormwater flows into the sewerage system and is treated. Some UK suppliers have argued that, in these circumstances, the volume of water during storms determines capacity requirements. They have argued that a uniform access fee is an appropriate means of charging all users for sewerage services.

In theory, the sewerage systems of the suppliers are separate from the stormwater systems. However, in practice, significant volumes of stormwater infiltrate the sewerage system due to factors such as seepage and illegal connections. The PWD emphasised this in its response to the Interim Report.

The analysis of costs by Travers Morgan suggests three primary factors in sewage treatment costs: wastewater volumes, the biochemical oxygen demand (BOD) of the pollutants, and the suspended solids. For the SWB, Travers Morgan estimated that these factors account for 30%, 5% and 65%, respectively, of the operating expenditures for ocean outfall sewage treatment plants. For inland treatment plants, the estimated split is 20%, 35% and 45%, respectively.

The estimates suggest that costs are a function of both the volume of wastewater and the mass and type of pollutants. Ideally, usage charges should reflect each factor. A single price could reflect the combination of these cost factors for normal domestic waste. However, many non-residential discharges will not be the same as normal domestic waste. The approach adopted by both the SWB and the HWC is to set a standard sewerage charge per kL of discharge for all non-residential customers and a trade-waste charge for those customers who discharge other than normal domestic discharges. (The setting of trade-waste charges is discussed in Chapter 12.) In principle, these charges should reflect the additional costs imposed by the pollutant loads.

The cost analysis by Travers Morgan has some important implications for the application of volume-related sewerage charges to residential customers. Although it is possible to set a composite usage charge on the basis of normal domestic waste, it may be difficult for residential customers to reduce the mass of pollutants discharged. Residential customers may be able to reduce the volume of discharges to some degree, but this will have a limited effect on the costs of treatment.

Clearly, the standard to which wastewater must be treated will have a substantial effect on the costs of treatment (see Chapter 5). Higher standards may be set for point-source discharges to particularly sensitive environments which have less absorptive capacity. A case in point would be a river with a low flow rate.

10.3.2 Usage-based pricing options

Non-residential customers

In general, a two-part tariff with the usage charge set at the marginal cost of disposing of domestic type waste plus an access charge which may vary between locations will meet the desired pricing objectives. This tariff structure can be applied directly to industrial customers because wastewater discharges may be metered or assessed without excessive cost. Where non-domestic type wastes are discharged, charges should be adjusted to reflect the costs of treatment and disposal. This can be achieved through multipart tariffs, as suggested by the PWD or by a separate trade waste charge. The issue of pricing for non-domestic type wastes is discussed in Chapter 12, under Trade Waste Charges.

The SWB and the HWC levy a two-part tariff on industrial customers. Despite concerns about the cost-reflectiveness of the structure of the tariffs and continued use of property value-based charges, this appears a practical and workable approach to pricing for non-residential customers. Overall, the discharges of non-residential customers appear more responsive to usage charges. Hence, usage charges will induce reductions in the volume of discharges.

Proposal 10.1: The Tribunal endorses the use of two-part tariffs in charging non-residential customers for domestic-type waste discharges.

Residential customers

The application of this structure to residential customers is much more problematic. Sewerage usage charges are rarely applied to residential customers in other water systems. If, as suggested above, household discharges of wastes are relatively insensitive to usage prices, no significant change in the use of resources may be achieved. It is difficult to apply usage charges, as the metering of waste discharges is not feasible. Although proxies for the measurement of discharges could be, and are used, in the absence of direct measures of discharges usage prices may not create the desired incentives to reduce discharges.

Possible proxies for measuring sewage discharges include:

- i Assumption of a standard discharge factor. This is the approach adopted by the HWC. The HWC pricing structure assumes that 50% of household water consumption is discharged into the sewerage system. In practice, the discharge factor will vary substantially between households. Customers living in a house with a large garden or a swimming pool will discharge a smaller proportion of the water consumed than a flat or villa. The assumption that 50% of water consumed is discharged probably underestimates the discharge factor

for most households. The conservative nature of this assumption may partly explain the differences in the residential and non-residential charges per kL of wastewater.

The practical effect of a standard discharge factor is to increase the marginal cost of water for residential customers. It provides little incentive to reduce sewage discharges. Rather, it will encourage further reductions in water demand. To the extent that in-house use of water is reduced, there will be a reduction in the volume of discharges. However, evidence suggests that reductions in external water use are more likely. Furthermore, any reductions of in-house water use may result in an increase in the concentration of waste discharges rather than a reduction in the mass of pollutants discharged.

- ii A Variable discharge factor related to total consumption. The bulk of water used inside the house is discharged to the sewerage system, while outside water should not flow into the sewerage system. The proportion of water used externally tends to increase with total household water consumption. Thus, a discharge factor which reduces with total consumption may better reflect the volumes actually discharged.

Again this approach effectively increases the water usage charge. Rather than charging an access fee only for sewerage services, it imposes an additional charge based on the amount of water used. As such, it increases the effective price of water and would encourage consumers to use less water, rather than to reduce discharges.

A declining discharge factor would mean that a sewerage usage charge per unit of water consumed would reduce as the volume of water consumed increased. This would result in the perverse effect that a household which consumed small amounts of water would face a higher marginal cost for an additional kL of water than a household which consumed a large amount of water.

- iii A discharge factor based on winter water consumption. Outside water use is highly seasonal, with a relatively small amount of water being used outside during winter. Hence, it is argued that annual sewage discharges could be estimated on the basis of a proportion of water consumption in the winter quarter. If meters are read quarterly, this estimate could be multiplied by four to provide an annual estimate.

Again this approach does not provide a direct link to discharges and may have the effect of encouraging a reduction in water consumption during the winter period when consumption is already low.

- iv Flushing unit charges. Some States have introduced additional charges based on the basis of the number of flushing units. The incentives

effect of this approach is poor. It will not discourage sewage discharges because these are not measured directly.

- v Separate metering of external usage of water. Little water used externally flows into the sewerage system, while most water used internally does. Hence, dual metering with a separate meter for external use does provide a good proxy for the metering of discharges. The main problem with this approach is the cost, which could be quite substantial for existing residences.

Each of these options has significant disadvantages. All except the last two run the risk of confusing sewerage and water usage charges and encouraging excessive conservation of water instead of reductions in discharges. Separate metering has a number of attractions, but the cost is such that it is not feasible as a mandatory requirement for existing dwellings. Of options i-iii, the third is considered the most equitable and accurate in matching the charges with the level of discharge. Within this option dual metering could be mandatory for new dwellings and a new rate structure could be established for residences with dual metering.

As far as the Tribunal is aware the HWC is the only metropolitan supplier in Australia that has introduced a volume-related charge for residential wastewater. A flushing unit charge has been introduced by other suppliers, such as Brisbane.

The Tribunal is not convinced that the benefits of usage-based charges for residential customers outweigh the administrative and transitional costs involved. Once decisions on the form of residential urban development are taken, there may be little scope for residential discharges to respond to usage prices. To the extent that a household can reduce discharges by, say, running washing water into the garden, the primary effect may be to change the dilution of wastewater rather than the mass of pollutants. Indeed, the PWD has argued that usage charges for residential customers cannot be cost reflective, as costs are driven by factors such as stormwater flows.

The net gains from a move towards usage pricing for residential discharges are questionable. Administrative costs and problems with the various proxies for discharges, such as the danger that they may result in an effective overpricing of water rather than correct pricing of discharges, may well outweigh the small potential benefits.

Proposal 10.2: The Tribunal considers that a uniform access charge is an administratively efficient and equitable means of charging for sewerage services to residential customers in the same service area. However, the Tribunal wishes to leave open the option for authorities to implement usage-based charges where they can be shown to yield sufficient benefits to outweigh the transitional and administrative costs and where the method of assessing discharges can be shown to be fair. Given that the HWC has

already made the transition to a usage-based charging system, the Tribunal endorses its continuation. However, it will require the HWC to review the usage charge and discharge factor prior to commencement of the next licence period in July 1995 to ensure the charging system has become more cost-reflective. Changes would be implemented in the life of the new licence period.

In its response to the Interim Report, the SWB argues that the alternatives need to be evaluated more fully. The SWB advocates the introduction of sewerage usage charges for the residential sector. The Tribunal has yet to be convinced of the practicalities of this approach but has not closed this option off. However, it has placed the onus on the water authorities to demonstrate the appropriateness of this method of charging.

10.3.3 Access charges

With the SWB and HWC, sewerage access charges are based on water meter size. The argument for this approach is that network capacity costs are, in part, determined by maximum potential discharge volumes and potential discharges are a function of the maximum water drawdown.

Two issues arising from the application of this approach are the scale of the meter-based charges and the use of discharge factors to pro rata the access charge.

Under the current scale of charges, the access charge is directly proportional to the area of the cross-section of the meter. This raises similar issues to those raised in the discussion of water access charges in Chapter 9. Whether the current scale is cost-reflective is similarly open to question.

The HWC allows for a discharge factor to be applied to reflect the extent to which the volume discharged is less than the amount of water consumed. While the SWB allows for the use of estimated discharge factors for the calculation of the usage component of the bill, the access charge has not been charged pro rata on the basis of the discharge factor. This appears to have caused difficulties for some customers.

Submissions from golf courses and nurseries point out that a large amount of water consumed is for external use and that this water does not flow into the sewerage system.

Proposal 10.3: The Tribunal supports in principle the calculation of access charges on the basis of meter size adjusted for discharge factors. However, the scale of such charges should be demonstrably based on the impact of maximum discharges on costs. Customers should be informed of the scope and basis for the assessment of discharge factors.

10.3.4 Region-based charges

According to the available estimates, the costs of waste treatment vary substantially between inland and ocean treatment plants. In principle, these cost differences could be reflected in usage charges.

Non-residential customers

The usage and location decisions of non-residential customers are likely to be responsive to regional price variations. Hence, regional prices will yield greater benefits in terms of a better allocation of resources. The SWB's experience with trade-waste charges highlights the importance of clear signalling of medium-term price strategies and adjustment mechanisms to reduce the transitional costs of changes in pricing structures.

Proposal 10.4: The Tribunal proposes that water supply authorities should seek to move over time towards more cost reflective region-based charges for non-residential customers.

Although agreeing with this proposal, the SWB is of the view that the level and cost of collecting, transporting and treating wastewater should determine the charges, not the type of property discharging the waste. This issue is addressed in the following section concerning residential customers.

Residential customers

The costs of transporting, treating and disposing of wastes from residential customers varies by location. These cost differences could be signalled through regional variations in access charges or any usage charge. However, residential customers appear to have limited capacity to reduce waste discharges. Residents in the existing housing stock are unlikely to respond to variations in sewerage access or usage charges. Consequently, discharges for existing urban areas may not vary greatly in response to regional variations in charges and there would be little benefit in terms of cost reductions for the supplier or better use of resources.

Uniform sewerage charges across residential customers result in some customers cross-subsidising others. This is inconsistent with a "user pays" view of equity; that each person should pay the full costs of services consumed. However, the Tribunal is concerned about the potential impact of regional variations in charges on existing customers who have made housing decisions on the expectation of uniform charges across the supplier's area of operation. Changes of the magnitude indicated by cost variations could have a significant effect on house prices and future bills faced by current owners. Consequently, there may be large windfall losses or gains for some customers. The Tribunal doubts that the relatively small efficiency gains which may flow from region-based charges would outweigh the adjustment costs.

The relative benefits of signalling cost differences are much greater for new development areas. Location decisions may be more sensitive to pricing signals. However, it may be more efficient to signal regional variations in up-front costs through developer charges, rather than in region-based annual or usage charges.

Proposal 10.5: The Tribunal proposes that annual sewerage charges for residential customers should remain common across the area of service for each authority. Differences in costs for new developments should be signalled through developer charges.

10.3.5 Environment levies

Customers of both the SWB and the HWC pay environment levies. In the case of the HWC, the levy partly funds a sewerage backlog program, while the levy on SWB customers has funded additional works to clean up Sydney's waterways and beaches.

Levies to cover environmental costs

Ideally, standards should be set for discharges and the costs of meeting those standards should be reflected in the normal charges paid by customers. Meeting environmental standards is a normal cost of doing business.

Even where these standards are met, discharges may still involve some environmental costs. A tax or levy which reflects these environmental costs may be an appropriate means of signalling the costs. Whether this is done, and how the revenue is spent, is a matter for consideration as part of the Government's overall environment and budgetary policies. There are few merits in requiring that the revenue from such a levy should fund only environmental works by whichever supplier is covered by the levy.

Subsidisation of connection of existing customers to the sewer

In principle, the costs of extending sewerage services to existing customers without sewerage services should be recovered from the beneficiaries through capital contributions. This is an extension of the principle underpinning developer charges on areas of new development.

The primary beneficiaries will be the local residents served by the extension. Some of the major benefits may be a rise in land and housing values and avoidance of the costs of pumping out or other costs of current systems. If current systems do not meet public health standards there may also be health benefits to local residents who obtain a sewer connection. These may in turn have public health benefits for the wider community.

To the extent that there are public health benefits for those outside the local community served, a subsidy to contribute to the funding of the initial

connection may be desirable. This subsidy could be provided either through a cross-subsidy from other customers of the supplier or an explicit subsidy from government.

In practice, the desire to subsidise connection and reduce regional differences in the costs to customers of sewerage service may be based on regional equity goals. This appears to be the case with the HWC environmental improvement charge and cross-subsidies to the HWC under the sewerage backlog program, as well as cross-subsidies to country towns under the Country Town Water and Sewerage Scheme.

Proposal 10.6: The Tribunal considers that where environmental levies are used to fund work which is essential to meet established environmental standards, the charges should be built into the price structures as normal income. Beyond this point, environmental levies could be used as a pollution tax.

Proposal 10.7: The costs of new connections to the sewerage system should, in principle, be recovered from those being connected. To the extent that the Government considers the charges would have unacceptable regional equity consequences, subsidies could be provided as a CSO.

10.4 Application of sewerage pricing principles to the SWB

Residential customers

As the SWB does not levy a sewer usage charge, continuation of a uniform access charge is considered appropriate.

At present 40% of SWB customers pay an additional charge based on 1980 property values. This charge should be removed over time. Removal of this charge will need to be accompanied by increases in the access charge. Capacity to fund the removal of the property-based charge from productivity gains will be limited by the other demands on these gains, such as higher standards or a reduction in cross-subsidies. The timing of its removal should be managed to minimise the impact on households, especially those whose capacity to pay is limited.

Non-residential customers

The property rates component should be removed from charges. This should be accompanied by a reduction in the cross-subsidy to residential customers. In practice, the timing of the removal of this component will be constrained by the need to manage the impacts of the changes on the residential sector. The Tribunal's 1993/94 determination will reduce property rates on non-residential customers by \$60 million.

The current meter size price structure needs review. It is not clear that it reflects customer, network and capacity costs accurately.

Over time, the usage charge for industrial customers should be adjusted to vary according to location in order to reflect the costs of treatment and disposal. Many industrial customers would then receive a reduction in their usage charges. However others might face significant increases. Transitional arrangements to smooth the impact of this would be needed.

Special Environment Levy (SEL)

Concerns about the quality of Sydney's waterways and beaches led to the introduction of the SEL which was intended to fund works required to meet the community's expectations. The Tribunal is concerned about the SWB's efficiency and believes there is substantial scope for reductions in costs. However, the costs of meeting environmental standards should be regarded as an integral part of the SWB's activities. Following the release of the Interim Report the Tribunal approved a price reform package which included removal of the SEL and increases in usage charges.

Proposal 10.8: The Tribunal proposes that the SWB adopt the above changes as goals for the reform of pricing structures over the next five years. This will require:

- ♦ *the phasing out of current property rates*
- ♦ *review of usage charges for non-residential customers to reflect location*
- ♦ *review of access charges for non-residential and residential customers*

10.5 Application to the HWC

Residential

The Tribunal has some concerns about the sewerage usage charge implemented by the HWC, but these are not sufficient to justify the replacement of the current approach as a method of estimating sewerage usage. However, it is considered that the current usage charge (\$1.16) is too high and the discharge factor (50%) is too low. Adjustment of these factors would provide clearer signals but may not substantially change the total amount paid by the residential sector.

Non-residential

The present charges do not appear to be cost-reflective. The declining block charge should be removed and replaced by a simple two-part tariff comprising an access charge and a usage charge. The usage charge could vary by location according to the costs of treatment and disposal but the per kL price should not vary with the amount consumed. Usage charges would increase for those industries discharging into inland plants. The transition to

the proposed system would need to provide scope for industry to adjust. The property tax component should continue to be phased out.

The cost-reflectiveness of the current access charges based on meter size needs to be assessed.

These changes may have a significant effect on some non-residential customers. Given the sensitivity of these customers to price changes and the HWC's reliance on a small number of large customers, these impacts will be an important constraint on reform. Furthermore, as the HWC has pointed out, possible efficiency gains need to be balanced against administrative and adjustment costs. Responsibility rests with the HWC for the development of a medium-term price strategy which is consistent with the directions endorsed by the Tribunal in this report and takes account of adjustment costs and the particular market for the HWC's services.

Environmental improvement charge

The environmental improvement charge is part of a funding arrangement negotiated with the Government for the extension of sewerage schemes in the HWC's area of service. Another component of this funding is a direct subsidy from the Government. There are questions about the net benefits of the works funded and the extent of the subsidy to new connections. However, the Tribunal considers that, as it is an integral part of a negotiated CSO arrangement agreed between the HWC and the Government, it is not appropriate for the Tribunal to recommend changes to the current arrangements.

Timing of changes

The timing of structural changes in the HWC's prices is complicated by the pricing provisions of the licence agreement agreed to at the time of the HWC's corporatisation. The licence agreement requires that prices for any residential customers with a standard meter and consumption between 50 kL and 400 kL per annum should not increase by more than the CPI. It also requires that average prices for non-residential customers should not increase by more than the CPI. The latter constraint is not as binding, but the first constraint effectively rules out major changes in the structure of residential prices.

The Tribunal understands that its Act would enable it to overrule the licence agreement provisions. However, it considers that this would be undesirable and that implementation of aspects of the price reforms proposed, such as changes to residential sewerage charges, should be deferred to the commencement of the next licence period in July 1995. It is essential that the next licence agreement provide greater flexibility for the realignment of price structures.

Proposal 10.9: The Tribunal proposes that the HWC adopt the goal of achieving cost-reflective sewerage charges in the licence period commencing July 1995. This would involve:

- ♦ *reviewing and amending current usage charge for households and discharge assumptions to better reflect cost structures*
- ♦ *removing the current discount on the usage charge for large dischargers and aligning the charge with costs (including locational differences)*
- ♦ *reviewing the scale of access charges based on meter size*

Pending these changes, the HWC should continue to give priority to the removal of the remaining property rates, with the target of complete removal within two years.

10.6 Application to Gosford

Charges in Gosford do not appear to be cost-reflective. Residential and non-residential customers pay sewerage charges on the basis of property rates. Usage charges are not levied on either type of customers. This structure of charges may result in cross-subsidies between the residential and non-residential customers. However, the extent to which there may be cross-subsidies is uncertain.

Proposal 10.10: The Tribunal proposes that Gosford Council adopt the goal of achieving cost-reflective sewerage charges over the next three years. This would involve:

- ♦ *phasing out property rates on residential and non-residential customers*
- ♦ *introducing access charges related to meter size*
- ♦ *introducing usage charges for non-residential customers*

The phasing of these changes will depend on the distribution and magnitude of the impacts on the residential and non-residential sectors, and will be subject to approval by the Tribunal.

10.7 Application to Wyong

Wyong has moved to a flat access charge for sewerage services to residential customers. The cost-reflectivity of this should be monitored but no further changes of a general nature are recommended.

Non-residential customers in Wyong pay a property-based charge, but do not pay a usage-based charge. The principles outlined above suggest that property-based charges should be phased out, and usage charges should be introduced. The access charge should be based on meter size. The scale of the meter size charges should be considered in the light of the reviews by the SWB and the HWC which the Tribunal has requested. Wyong's submission

on the Interim Report notes that the introduction of usage charges could adversely affect some non-residential customers. The Tribunal accepts that this may well be the case. However, the appropriate response may well be to phase in the changes, or to provide transitional assistance. Non-residential customers' greater ability to respond to usage charges increases the importance of such cost-reflective charges.

Wyang Council has raised the issue of charges for caravan parks and non-strata title retirement villages.

Currently non-strata retirement villages pay a much lower access charge per residence than other residential accommodation. At the Public Hearing on the Interim Report, Wyong Council's representatives stated that:

"One development of around 114 occupied dwellings in a non-strata situation was paying about \$4,000 whereas if the same 114 units were privately owned or strata titled they would be paying something like \$48,000. Maybe \$48,000 is too high but certainly the \$4,000 is too low."⁶⁰

Wyang has proposed that non-strata retirement villages be moved on to the normal residential charges over time. This appears appropriate in terms of ensuring residential charges are more uniform across different types of residences, but some customers may face very substantial increases. In the example quoted above, the increase would be more than tenfold. In view of the magnitude of the changes, Wyong Council needs to give further consideration to transitional arrangements and the phasing of the changes.

The difficulty raised by caravan parks is whether they should be treated as residential or non-residential customers. Caravan parks can offer permanent low-cost accommodation as well as holiday accommodation. It is open to question whether they should be treated as residential customers or as commercial customers.

The PWD estimates that a caravan site is equal to 0.75 of a normal household in its use of sewerage services. This ratio would seem to depend on factors such as occupancy rates. It may be more appropriate to review the treatment of caravan parks in the light of the proposed changes in non-residential charges which are designed to make these charges more cost-reflective.

Proposal 10.11: The Tribunal proposes that Wyong Council adopt the goal of achieving cost-reflective sewerage charges over the next three years. This would involve:

- *phasing out property rates for non-residential customers*
- *introducing access charges related to meter size*
- *introducing usage charges for non-residential customers*

⁶⁰ Public Hearings on Water: An Interim Report, Transcript for 2 July 1993, p177-8.

The phasing of these changes will depend on the distribution and magnitude of impacts on the residential and non-residential sectors and will be subject to approval by the Tribunal.

10.8 Application to country town schemes

The principles outlined above are applicable to country towns. In general, the changes required are similar to those proposed for Gosford and Wyong Councils. As discussed in Chapter 17, the proposed Office of Water could be responsible for overseeing such changes.

Proposal 10.12: The Tribunal proposes that guidelines be developed consistent with the cost-reflective principles outlined above, for implementation by country town water and sewerage schemes. This task could be carried out by the PWD or the proposed Office of Water.

10.9 Summary of recommendations

Non-residential customers should be charged for sewerage services under a cost-reflective, two-part charge comprising a usage charge and an access charge. The usage charge should vary between locations where the costs differences are substantial.

Access charges for non-residential customers should be levied on a scale based on meter size, adjusted for discharge factors.

A flat access charge is an appropriate means of charging residential customers. This could be combined with a usage charge if the benefits of this arrangement could be demonstrated by the water authority. Charges for residential customers should be uniform across the supplier's region of service.

Property rates should be phased out, subject to adequate transition arrangements and safety nets to avoid hardship for households with limited capacity to pay.

Where environmental levies are required to fund programs to meet externally set environmental standards, they should be included in standard charges.

The SWB should adopt this structure as a goal for price reform over the next five years. Wyong and Gosford should adopt it as a goal to be achieved within the next three years. The HWC should phase out the remaining property rates component within two years. However full implementation of the proposed structure may need to await the commencement of the HWC's new operating licence in July 1995.

11 STORMWATER AND DRAINAGE SERVICES

11.1 Introduction

Stormwater and urban run-off are now widely regarded as major sources of pollution in urban areas. A number of factors contribute to these problems and make their resolution complex. Currently, councils and urban water suppliers share responsibility for stormwater services. It is difficult to set standards for stormwater discharges, and standards have not yet been set. Furthermore, the nature of stormwater services makes it difficult to price these services.

This chapter:

- ♦ outlines the current allocation of stormwater responsibilities and methods of charging for stormwater
- ♦ examines the nature of stormwater services and the relative roles of pricing and institutional changes in reducing the problems created by stormwater
- ♦ outlines a possible set of pricing and institutional responses

11.2 Current position

Responsibility for the provision of stormwater services in the Hunter and Sydney are shared by water suppliers and local councils. Suppliers commonly provide stormwater infrastructure where this serves the residents of more than one council.

For example, the SWB controls 321km of stormwater mains, only a relatively small proportion (2%) of the total stormwater infrastructure in Sydney. However, these are trunk mains which service approximately a quarter of Sydney's population. Customers generally connect into the trunk mains through feeder mains owned and operated by local government.

Both the SWB and the HWC levy charges on customers who are served by the stormwater channels which those organisations own and operate. In each case, there is a base access charge for stormwater and drainage services levied on each of the customers served. Additional charges based on property values are paid by non-residential customers of the SWB and the HWC. Residential customers of the SWB who own a property with a land value of more than \$33,000 (at 1980 values) also pay a charge based on property valuation.

Outside these regions, local councils are responsible for stormwater and flood management and the PWD and DWR provide technical support and advice.

11.3 The problem of stormwater services

Stormwater and urban run-off are major, but diffuse, sources of pollution in waterways and on ocean beaches during and just after periods of heavy rain. During major storms the quantity of stormwater, and the pollution it carries, greatly exceeds the quantity of sewage discharges and their pollutants. However, the significance of any residual pollution outside these periods is less certain. Urban development has contributed to the magnitude of stormwater flows. However, the HWC has argued that this part of a natural process of flushing waste from the land to the sea before it is recycled as rain.

To date, standards have not been set for stormwater discharges. This has led to concerns, as expressed by the Australian Chamber of Manufactures (ACM), that higher standards have been set for point sources of pollution, such as trade waste, to offset the problems created by stormwater flows.

The key causes of stormwater pollution appear to be litter, animal faeces which are washed into the stormwater system, vehicle emissions⁶¹, fertilisers and overflows from the sewerage systems. The overflows from the sewerage system result from illegal connections of stormwater into the sewerage system and infiltration of stormwater through cracks in pipes and seepage. Overflows from the sewerage system go back into the stormwater flows. Another problem of the stormwater system is that local flooding is often caused by the inadequacy of the existing system.

Reductions of these problems could be achieved through:

- ♦ changing behaviour; for example by encouraging people to pick up after themselves and their pets
- ♦ improving litter collection practices
- ♦ improving the integrity of the sewerage system by discouraging illegal connections of rainwater flows and reducing seepage through breaks and leaks
- ♦ fitting trash racks at the end of stormwater drains to reduce the more obvious signs of pollution
- ♦ improving the capacity of existing stormwater systems in order to prevent local flooding
- ♦ providing retention areas to allow natural treatment of stormwater (this option has limited application in areas which are already highly developed)
- ♦ treating stormwater (this is a high-cost response which is not considered feasible).

⁶¹ Hydrocarbons and lead in stormwater appear to result from the settling of emissions from vehicles and leakages from storage.

If stormwater pollution is to be reduced, the key problems to be addressed are that:

- ♦ current institutional arrangements do not provide clear standards or appropriate incentives for the providers of stormwater services to reduce the pollution problems
- ♦ the pricing system does not provide any incentive for users to modify their behaviour to reduce the run-off problems and associated pollution.

In economic terms, the problem revolves around the public good nature of stormwater services and the poor allocation of property rights.

The major benefits of stormwater management are public health and safety. These benefits are a public good in the sense that many individuals receive these benefits and it is not possible to prevent any individual from enjoying these benefits. Nor do community benefits enjoyed by one person reduce those of another. In these circumstances, it is difficult to price stormwater services as a normal good. To the extent that each individual is enjoying benefits or imposing costs that cannot be individually identified, a flat charge across the community may be an appropriate response.

However, behaviour by individuals and councils can affect the extent of stormwater problems and this behaviour can be modified by better pricing and allocation of property rights. Associated with this is an absence of a properly defined regulatory environment that treats stormwater in the same way as other sources of pollution. The Tribunal understands that the EPA is working towards the establishment of stormwater standards. This is a difficult problem due to the diffuse nature of stormwater discharges. The problem is made more difficult by the multiplicity of organisations responsible for stormwater services. Responsibility for the operation of parts of the stormwater system of a Sydney basin might be shared by several local councils and the SWB.

Resolution of the current problems will require the following:

Integrated environmental regulation

Although stormwater is a diffuse source of pollution, environmental regulation needs to treat it on an equivalent basis with point sources of pollution. This implies that discharges from drains to receiving waters must be licensed. *Standards for point-source pollution should not be raised to compensate for deficiencies in the control of stormwater standards.*

Urban development has a significant effect on stormwater problems and pollution levels. If pollution rights were traded, the prices of such rights would rise as urban development increased. In the short-term, this approach does not appear feasible. A practical alternative to such pricing mechanisms is the incorporation of the impact of urban development on stormwater

problems in urban planning. The urban planning processes within government provide mechanisms for doing this. Considerable attention was given to stormwater issues in planning for the Rouse Hill development. However, proper consideration of stormwater in new developments requires the establishment of explicit stormwater standards.

Decision-making based on stormwater catchment areas

Many of the problems in stormwater arise from its public good nature. However, if stormwater basins are clearly defined and stormwater pollution licensed with clearly set standards, this public good element can be internalised within the basin, thereby encouraging the group of residents in the basin to recognise their interdependence and reducing free-rider and enforcement problems.

Clear allocation of accountabilities and responsibilities

The better definition of catchment areas needs to be matched by a clearer allocation of operational accountabilities and responsibilities. Both the SWB and local councils are responsible for providing stormwater services. Whilst ownership of the drains can be allocated, ownership of the problems created is muddled by the lack of clear accountabilities.

Region-based pricing

It is unlikely that stormwater pricing can be designed to provide strong incentives for individuals to change their behaviour in the short-term to reduce stormwater problems in existing urban areas. It may prove difficult to design price structures at the individual level that are based on plausible proxies for household contributions to stormwater problems. In any case, changes in behaviour by households in existing areas may have limited impact on stormwater and run-off problems. Arguably, councils have a greater capacity to manage stormwater flows in response to externally set standards and prices for stormwater services provided by the SWB and the HWC.

For new development areas, the costs of providing stormwater infrastructures could be included in the capital charges levied. This would signal to purchasers the relative costs of stormwater management in different locations.

In its submission on the Interim Report, the SWB comments that the issue of differences between new and existing urban areas had not been addressed. The Tribunal notes and agrees with this comment. In the case of new urban development, stormwater management issues should be addressed in impact analyses conducted before rezoning occurs. However, for existing areas, it is difficult to assign costs for new stormwater systems designed to fix up old problems.

Recommendation 11.1: The Tribunal recommends that:

- ♦ *environmental standards for stormwater and urban run-off should be set and integrated with the standards for other discharges*
- ♦ *decision-making should be based on or co-ordinated with a stormwater catchment area*
- ♦ *accountabilities and responsibilities for the provision of stormwater services should be clarified*
- ♦ *reform of stormwater should focus on the incorporation of stormwater infrastructure costs in developer charges and the alignment of charging structures with defined accountabilities for stormwater services*

11.4 Possible pricing and institutional responses

11.4.1 Proposals by the water suppliers

The SWB has proposed a catchment-based charging system. Under this system, the costs of addressing flood mitigation and water quality problems would be recovered from customers in the stormwater catchment area. It should be noted that such catchment areas may vary considerably in size and are unlikely to match sewerage or water supply catchment areas. Catchment area stormwater charges would vary according to the area of land occupied on the basis that stormwater run-off can be related to property size.

Under this approach, charges would vary substantially between locations and could be quite large for some. Charges estimated by the SWB for a selection of catchments ranged from \$47.50 to \$398.00. In each case almost all of the charge was required to fund flood mitigation works. Implementation of this approach would require community support; the SWB has already been forced to withdraw a proposal for a \$60 charge, following opposition from Cabramatta residents.

The HWC also considers that the current stormwater arrangements are inappropriate. In its view a clearer allocation of responsibilities and accountabilities is essential. This could be achieved by a transfer of accountabilities to local government or to themselves. The HWC submission proposes replacement of current drainage charges for non-residential customers with a "residential equivalent lot" based charge, if HWC retains drainage responsibilities.

The PWD supports the clear assignment of responsibility for the provision and operation of stormwater services to local councils.

11.4.2 Preferred proposal

In line with the principles outlined in section 11.3, the Tribunal proposes the following approach for comment.

- i The Government should set environmental standards for stormwater. These standards should take account of economically feasible technologies and the relative costs of achieving reductions in pollution from stormwater compared with other sources of pollution. Under current organisational arrangements, the EPA would be responsible for setting these standards. Under the options proposed in Chapter 6, standards would be set by a regulator which combined some of the functions currently undertaken by the EPA, the DWR and suppliers. In any case, community involvement in the processes by which the government sets the standards will be important.*
- ii Catchment basins for stormwater should be clearly defined and decisions should be taken on a catchment-area basis. If, as proposed below, local councils are to be responsible for stormwater and urban run-off services, this may require co-operation between local councils where catchment areas span more than one council area. This could take a variety of forms. One option would be to set up catchment management trusts responsible for management of stormwater functions within the basin on behalf of the local councils. An alternative would be the establishment of stormwater management or consultative committees that would co-ordinate council practices and policies for stormwater management.*
- iii Responsibility for the provision and operation of stormwater services should be clearly assigned to local councils. In theory, either the water suppliers or the local councils could be made fully responsible for stormwater services. In practice, there are a number of reasons why the function should be clearly allocated to local government. The area of local councils is more likely to match catchment areas for stormwater. Councils have greater control over the planning and development policies which can contribute to or correct stormwater problems. Councils may be better placed to levy charges to meet particular needs in the local area.*

Councils could contract with water suppliers for the provision of services such as main trunk stormwater drains.
- iv The Government should set standards for sewerage overflows. The EPA (or regulator as per Chapter 6) would set standards on the basis of the frequency and magnitude of the environmental problems caused. The water suppliers would be clearly responsible for meeting these standards.*

- v *Prices would be set to recover costs on an area basis.* The region for pricing could be the local government region or the catchment basin. The decision on this would be a matter for local governments. In practice, the resource allocation benefits from better pricing in existing urban areas may be modest. At this stage it is more important to get the setting of standards and the allocation of responsibilities right.

Where councils contracted with water suppliers for the operation of trunk stormwater drains, the suppliers would charge the councils rather than the local residents for the services provided. This charge could be levied in a variety of ways. It could be based on the number of residences, the total area, or a combination of these. The charge could include adjustments if councils have introduced strategies to reduce stormwater problems

If responsibilities cannot be reallocated clearly, an alternative would be for the water suppliers to retain their existing limited responsibilities for stormwater services, but to charge the local councils instead of households and local businesses for these services. The price charged would still be passed on to the local community through rates. However, the entity (the council) which initially faced the charge for the services would be best placed to respond to the price incentives by implementing measures to reduce stormwater flows.

A number of submissions such as those from the NSW Chamber of Manufactures and CHANGE reinforce the importance of stormwater as an environmental issue. Indeed, CHANGE argues that more attention should have been given to stormwater issues.

It is vital that priority be given to the establishment of standards for stormwater discharges and sewerage overflows. Continued absence of such standards will make it difficult to achieve better stormwater outcomes. However, setting such standards involves a complex set of issues. The very large number of points of stormwater discharge or sewerage overflow raises questions of the cost and feasibility of setting standards for, and monitoring performance, at this level. Alternative approaches would need to maintain an alignment of the performance standards set and accountabilities for this performance. More aggregated standards based on in-stream water quality may not be able to achieve this. The Tribunal recognises the difficulties inherent in setting stormwater standards, but such standards are essential.

Public comment following the release of the Interim Report tends to focus on the question of the ability of the local government to undertake the role of providing stormwater services. It should be stressed that, in fact, local government is already responsible for stormwater services outside the Sydney and Hunter regions. Even within these regions, primary responsibility currently rests with local government. However, arguably stormwater services have not been given the importance to date which they warrant. Given the lack of standards for stormwater services and the other

demands placed on local government's limited resources this is not surprising.

A submission from the Local Government and Shires Association focuses concerns about the ability of local government to take full responsibility for stormwater given the problems of assessing and measuring performance, the non-alignment of catchment areas with local government areas, and the limited financial resources available to local government. As noted above, the Tribunal recognises the problems in setting standards and assessing performance. Any system to be implemented is likely to require trade-offs which reflect the practical issues of compliance and administrative costs. Removal of the water suppliers' current drainage charges will provide some scope for increases in local government rates to fund stormwater services. However, increased stormwater expenditures are likely to be required. This will require increases in local government revenues which will need to be recognised in any constraints on local government funding set by the State Government.

With regard to the need for co-ordination across local government areas, the PWD favours the use of management committees as an effective and efficient management arrangement which is less 'bureaucratic' than the establishment of separate catchment management trusts. It considers that this arrangement has operated well elsewhere in the State.

The Tribunal considers the proposal put forward in the Interim Report has many desirable features which warrant its further investigation. The review and implementation of this approach is the responsibility of the Government and its other agencies rather than the Tribunal.

Recommendation 11.2: The Tribunal recommends that the Government consider implementation of the preferred proposal outlined above. Its key features are the setting of explicit performance standards by the environmental regulator and the clear allocation of responsibility for stormwater services to local government.

11.5 Summary of recommendations

In order to create a better framework for addressing stormwater pollution problems, the Tribunal recommends that:

- ♦ *environmental standards for stormwater and urban run-off should be set and integrated with the standards for other discharges to waterways*
- ♦ *decision-making should be based on, or co-ordinated within a stormwater catchment area*
- ♦ *accountabilities and responsibilities for the provision of stormwater services should be clarified*

- ♦ *reform of stormwater should focus on the incorporation of stormwater infrastructure costs in developer charges and the alignment of charging structures with defined accountabilities for stormwater services*

The Tribunal recommends that the Government consider implementation of the Tribunal's preferred proposal, including the clear allocation of the responsibility for stormwater services to local government.

12 TRADE WASTE CHARGES

12.1 Introduction

Trade wastes⁶² are commonly discharged into the sewerage system. In many cases, this is the most efficient way of handling trade wastes within the limits of acceptable environmental effects. However, the composition and concentrations of trade waste can vary enormously between different sites or at different times. The problems created by trade waste discharges vary accordingly, but include:

- ♦ additional costs for the water supply authorities in treating sewage
- ♦ health and safety risks for the employees of the water authorities
- ♦ environmental problems and health and safety risks for the community

Sewerage systems can handle trade waste discharges that are similar in type and concentration to domestic wastes at relatively little additional cost. Other pollutants, such as heavy metals, cannot be treated and may create substantial environmental problems. Some pollutants, such as sulphates, impose costs through the damage caused to the sewerage system, or threaten the health and safety of sewerage workers.

In practice, the management of trade wastes can involve a mixture of absolute standards that prohibit some discharges, and prices that encourage a change in the amount or composition of discharges.

This chapter:

- ♦ outlines current trade waste charges
- ♦ considers the appropriate principles for trade waste charges
- ♦ examines the application of these principles for setting discharge standards and trade waste charges

12.2 Current trade waste charges

Industrial customers of the SWB and the HWC pay a volume charge for sewage effluent and a trade waste charge based on the amount and type of pollutants discharged. The charges and methods of assessing pollutants vary between the two agencies. Both agencies set absolute levels for pollutants and will not accept discharges above these limits.

⁶² Trade waste is "any liquid or any substances contained in it, which may be produced at the premises of an industrial or commercial activity, but does not include domestic wastewater" (SWB, Trade Waste Policy and Management Plan, 1991-94, p.3). Options for treatment of trade waste include treatment and re-use or disposal on-site, disposal into the sewerage system, disposal directly into waterways or cartage and disposal off-site.

The HWC sewage charge for non-residential customers is 30c/kL up to 1000 kL per annum and 16c/kL above 1000 kL per annum. Trade waste charges range from \$0.04/kL to \$1.08/kL, depending on the strength of the discharge and the previous capital contributions by the dischargers. These charges are the same across the HWC's service area. Permit and inspection fees cover administrative costs. The HWC intends to review trade waste charges. It considers that, on average, the current charges do not recover costs fully and expects that the review may propose an overall increase in charges.

The SWB sewerage charge is 80c/kL where the discharge exceeds a quarterly allowance of 125 kL. Trade waste charges are determined on the basis of the concentration rates for particular pollutants. The absolute levels of pollutants allowed and the charges set vary according to the destination of the discharges. As Banksia Foods has shown in its submission, this may result in some customers who discharge to inland treatment works paying 13-14 times more than a similar customer discharging to coastal treatment plants.

Under the Environmental Trust Legislation (1990), the SWB's income from trade waste charges is now paid into the environmental trusts. As part of this policy, the Government instructed the SWB to increase trade waste charges by up to 15% per annum from January 1990 until the year 2000. This is a maximum increase and increases in recent years have been significantly less than this. Under this approach trade waste charges seem to be a pollution tax rather than a user charge, as the nexus between the charge and the costs of handling trade waste is broken.

The fact that the SWB deducts the trade waste revenue it pays to the environmental trusts from the dividends it pays to Treasury complicates the position. Theoretically, this means that the SWB retains the revenue from the trade waste charges, and general government revenues indirectly fund the environmental trusts. In practice, it is difficult to ensure that the gross dividend is not increased to provide the same net dividend payment.

Neither the government-mandated increases nor the transfer of funds to environmental trusts applies to other suppliers in NSW.

The intention to use trade waste charges in the Sydney region as a pollution tax is clear from the Second Reading Speech for the Environmental Trust Legislation by the Minister of the day, Mr Moore:

"Polluters who pay industrial discharge fees under the Sydney Water Board's trade waste regulations will provide, by direct charges on their disposal to the sewerage system of industrial substances, the capital sums and continuing accrual of capital base for these trusts. The Greiner Government believes that, as a classically appropriate example of the polluter pays, industry should provide a basis for cleaning up the problems of the past, as well as for education and research, to guarantee a better record for future generations."

On the licensing of industrial discharges, the Minister stated that:

"Over time, these standards [permissible discharge standards] should be driven towards zero as waste is eliminated as a by-product of manufacturing processes or is re-used, recycled or recovered in elemental form. Second, the prices charged for such discharges by either trade waste or licensing-fee regimes should be subject to continuing real increases to ensure that economic leverage is applied to such industrial dischargers."

The emphasis placed on environmental issues in the SWB's *Trade Waste Policy and Management Plan* shows that the current policy pursues both the commercial objectives of the SWB and broader community environmental goals.

This emphasis is understandable. The then State Pollution Control Commission had set water quality criteria which the SWB did not meet. In those circumstances, the SWB had to set tighter standards for itself and customers in the hope that future feasible standards would be met. As the SWB moves towards a more commercial framework, it is vital that it be given clear environmental standards within which to operate.

12.3 Principles for trade waste charges

The application of appropriate pricing principles to trade waste requires that:

- ♦ standards for acceptance should be set on the basis of the capacity of current systems to transport, treat and dispose of the wastes, having regard to the health and safety of sewerage workers.
- ♦ trade waste charges should at least cover the costs to the water supplier (whether it be the SWB or the HWC) of handling these wastes.
- ♦ the water supplier should retain at least this minimum level of funds.
- ♦ charges should vary to reflect differences in the costs of treating waste to the required standards at particular locations (for example, the inland treatment works of the SWB).
- ♦ water suppliers should set charges and standards in a manner that is transparent and accurate. The method of measurement should be reliable and the basis for setting charges should reflect costs incurred as far as possible.

In its submission on the Interim Report, the HWC notes that it:

"... agrees in principle with differentiating between treatment works when determining trade waste charges. However, there are some limits on the extent to which this can be achieved".

The Tribunal fully agrees with this, but the available data on costs suggests that a broad distinction between charges for waste treated at different classes of plant may be appropriate.

Particular pollutants may cause environmental problems, even with the best available economic technologies. Such cases require policies that go beyond the alignment of charges to costs incurred by the suppliers. Possible measures include tighter absolute standards on discharges from SWB treatment plants or industrial sites, a system of tradeable pollution or discharge rights, or a tax or price premium on discharges to reflect the environmental costs. Of these responses, tradeable discharge rights are the most efficient policy option, in theory. However, such approaches are in their infancy. The Tribunal considers that in the interim a tax or price surcharge may be preferable to non-tradeable quantity controls.

If a tax is levied on industrial wastes, it should be clearly separate from the usage charge. Although the water agencies are efficient collectors of such a discharge tax they should not be responsible for determining tax and environmental policy. Pollution taxes should primarily be the responsibility of the Government, via the EPA⁶³ and the Treasury, in consultation with the community. Where such policies impose increased costs on industry, the Department of State Development should be responsible for any transitional assistance program deemed necessary by government for industrial and commercial customers.

12.4 Issues in the present trade waste policy

The Tribunal received few submissions on the trade waste charges levied by the HWC. The principles which the HWC states underpin its trade waste policies are in line with those outlined above. The Tribunal has not reviewed the charges or standards in detail as it does not have the necessary expertise.

In the Interim Report the Tribunal proposes that the HWC establish a consultative process similar to that proposed for the SWB to provide input to the review of trade waste charges. The HWC responds that "... given the Tribunal's own independence, we question the need for an alternative formal independent review". However, the Tribunal does not consider that it has the necessary technical skills or resources for such a review, nor can it provide the customer focus required.

Proposal 12.1: The Tribunal proposes that the HWC adopt a transparent process for the proposed review of trade waste charges. Ideally, this should incorporate advice from independent experts. The consultative process proposed below for the SWB may provide a suitable model.

⁶³ Under the institutional options proposed in Chapter 6, the setting of environmental standards would be the responsibility of a regulator and could include some functions currently performed by the DWR and the suppliers, as well as the EPA's functions. For simplicity, the term EPA is used but it should be interpreted to include the option of a wider regulatory body.

In contrast to this, trade waste charges in Sydney have been a focal point for industry's concerns. The Australian Chamber of Manufactures (ACM) conducted a survey of industrial customers concerning the costs imposed by trade waste standards and charges. Costs included the charges paid and the costs of modifying plant and processes to meet the set standards. The survey was mailed out to 500 companies, 71 of which replied. Trade waste compliance costs for the 71 customers which replied amounted to \$30 million per annum. While any extrapolation of these figures must be uncertain, these estimates do suggest that the costs are significant. This must be borne in mind in reviewing both the standards set for discharges from sewerage treatment plants and trade waste charges and standards.

A comparison of the principles set out above with current practice raises the following issues:

- i the reasonableness of the absolute pollution standards set and the methods for measuring pollutants*
- ii the appropriateness of the current charges in comparison with costs and charges levied by other suppliers*
- iii the magnitude of the tax element in the existing charges, and the allocation of responsibilities for this tax*

12.5 Appropriateness of the current trade waste standards

A submission from the Australian Chamber of Manufactures (ACM) expresses concerns about the scientific appropriateness of the standards set for discharge levels. In its view there has been little scientific justification given to the trade waste limits set for environmental protection reasons. Further, the ACM advocates that all such standards should be subject to cost-benefit analysis. At the Public Hearings representatives of Banksia Foods contended that the manner in which BOD discharge volumes were measured was inaccurate.

In response to the above comment in the Interim Report, the SWB has stated:

"The Banksia Foods assertion that the method of determining BOD5 is inaccurate is not correct. This belief arose out of the fact that the company was sampling its own trade waste discharge in line with its service agreement. ... As one would expect the results showed significant differences. Samples obtained in this manner are in fact different samples and would analyse as such"⁶⁴

The SWB has indicated that the 1994 standards for non-domestic substances such as metals and various chemicals are based on: the effects of these substances on the sewerage system, the difficulties in disposing of sludge contaminated with these substances, and the effects on the health and safety of sewerage workers. The sewerage system is not designed to treat these non-domestic wastes. SWB officers advise that these standards closely follow the

⁶⁴ SWB, Comments on Water: An Interim Report, p. 26.

national guidelines. Examination of data supplied by the ACM on standards in Sydney and Melbourne does not suggest that the SWB's standards are systematically tighter, although the ACM considers that Melbourne's standards may also be too tight.

The 1994 standards for domestic-type wastes require industry to get as close as possible to domestic levels of concentration and composition. High levels of concentration or non-standard compositions of domestic type wastes may impose some additional costs or affect effluent discharge quality. The standard set appears quite stringent in comparison with standards set in other systems in Australia and in the UK. There may be reasonable scope for a more generous standard and continued use of price-based and tax-based measures to encourage lower concentration levels.

SWB officers propose to administer the standards with some flexibility. Where a customer can come close to the standard at a reasonable cost but faces much higher costs to meet the standards in full, the SWB may negotiate special agreements that permit higher concentrations of pollutants. This would reduce the compliance costs for customers who can negotiate such agreements, but it does introduce some uncertainty about standards.

The Tribunal has some concerns about this approach. There is a danger that it will push industry into treating and/or reducing these wastes at a higher cost than treating the wastes in the sewerage system. A more appropriate solution may be higher absolute limits with the continued use of a price/tax structure to encourage lower concentrations of domestic-type wastes. In the longer term, tradeable • emission rights may be practical.

Resolution of the technical matters in setting and measuring standards is beyond the scope of the Tribunal. However, the Tribunal wishes to ensure that the SWB establishes a process to verify, and revise if necessary, the standards proposed.

The ACM has proposed that a separate committee with manufacturing representation should review the method for setting, monitoring and enforcing sewerage acceptance standards. The standards should separately identify the requirements based on effects on the sewerage system and those based on environmental impacts. A similar committee has been established in Melbourne.

Other customers who have raised concerns have not indicated a problem with the consultation process within the confines of the announced trade waste policy. Despite this, the concerns expressed about the appropriateness of the current standards and the manner in which discharges are measured need to be addressed.

In the Interim Report the Tribunal proposes establishment of a Consultative Committee which would provide advice on trade waste matters while leaving

the responsibility for setting standards and proposing price structures with the SWB. The Tribunal is aware of more general concerns among the SWB's non-residential customers about lack of consultation on changes in prices and services. Hence, the Tribunal proposes that this committee should also be used as a forum for feedback from non-residential customers on other issues as well as trade waste.

Following the Interim Report, the ACM has proposed that two committees be set up: a Customer Committee for liaison and consultation between the SWB and its industrial customers and a Consultative Committee which would also include the EPA, Department of Agriculture, community groups and the Government Pricing Tribunal. The ACM proposes that the role of the Consultative Committee should include cost-benefit analysis of new discharge limits or new treatment works and analysis of the impacts of other agencies and pollution sources on trade waste standards.

The Tribunal considers that the single committee proposed in the Interim Report can handle these issues adequately while still providing customer-oriented feedback. Furthermore, it has neither the resources, nor the desire, to participate directly on this committee. The Tribunal prefers to work with the industry to establish better processes and monitor outcomes rather than participate directly in decisions which are more appropriately the responsibility of the supplier.

Proposal 12.2: The Tribunal considers that the SWB must remain responsible for the establishment of standards which reflect the organisation's operational constraints. Rather than supporting the establishment of an independent committee responsible for setting standards, the Tribunal proposes that the SWB establish a consultative committee with representatives of the SWB, the EPA, industry, and independent experts.

This committee would parallel the user groups that other industries have found helpful. *In the period to July 1994 the SWB should provide the committee with an analysis of both the proposed standards and the costs to the SWB of treating and disposing of discharges which meet these standards.* The committee could provide further feedback to the SWB on the costs to industry of meeting the proposed standards and to the Tribunal on cost-reflective prices for trade waste.

12.6 Appropriateness of current trade waste charges

In its submission, the SWB states that the trade waste policy's main aim is:

"to progressively establish source control by encouraging the non-residential sector to improve the pre-treatment of the trade wastes they discharge, until they achieve a discharge quality that is equivalent to that of domestic sewage.

The acceptance standards to be achieved by July 1994 have been set at levels believed to be achievable by the use of the best technology economically achievable or expected to be achievable within the next three years."⁶⁵

Trade waste charges play an important role in this strategy. Charges for concentrations of pollutants above the 1994 standards are comparatively high to encourage industry to take early action to achieve these standards. Overall this policy has been highly successful in reducing the total mass of pollutants discharged into the SWB's sewers.

Many trade waste customers would have faced substantial increases in bills under this policy if discharges had remained unchanged. In practice, most have responded by reducing discharges. As a result, the increases in charges have been much more modest than they could have been. The SWB reduced the transitional impacts of the changes in bills by averaging the charges where the customer had a strategy for reducing discharges in place.

Whilst it is difficult to compare overall trade waste charges, the ACM compared the trade waste charges of the SWB and Melbourne Water for two hypothetical industrial customers. As only two cases are compared, the results are only indicative, but they suggest that charges vary substantially. In the case of a company discharging 300 kL/day with moderate concentrations of industrial pollutants, annual trade waste charges in Sydney were estimated at \$405,000 compared with \$87,000 in Melbourne. For a company discharging 50 kL/day with higher concentrations of pollutants the costs were estimated to be \$252,000 in Sydney and \$33,000 in Melbourne. In both these examples the charges in Sydney are five to eight times those in Melbourne. The comparison uses the SWB fees for discharges to inland treatment plants. The ACM argues that Melbourne plants treat waste to a standard similar to the SWB's inland plants.

The SWB considers the comparison with fees for discharge to secondary or tertiary treatment plants is invalid. Instead, the comparison should use the costs of discharge to primary treatment plants. If so, the SWB would charge \$115,900 in the first example and \$45,000 in the second example. In each case the charge will reduce as industry achieves the 1994 standards. The SWB also considers that the second example is highly unrealistic, as no known business would discharge the composition of wastes cited.

Given that there appears to be a tax element in the current charging structure, it should not be surprising that SWB charges are higher than Melbourne Water's.

⁶⁵ SWB. Submission to Tribunal 1992, vol 3, p.34.

12.7 Separation of trade waste pricing and environmental taxes

The current trade waste charges lack transparency and, importantly, confuse a tax and a user price. Clarification of the current costs of treating trade waste will provide the basis for appropriate usage charges. It is also necessary to allocate responsibilities for taxing and pricing policies in a way that reflects proper accountabilities and creates the correct incentives.

Recommendation 12.3: The Tribunal recommends a framework in which:

- ♦ *the EPA sets effluent standards for wastewater treatment plants*
- ♦ *the SWB sets absolute pollutant levels for the wastewater it receives. The SWB should set charges based on the costs of treating those pollutants it will accept.*
- ♦ *usage charges vary according to the costs of treatment at the receiving plant*
- ♦ *the SWB retain the revenue from the usage charges it sets*
- ♦ *the government sets, via the EPA and the Treasury, pollution taxes that are explicit and separate from usage charges. In principle, such taxes need not be limited to the Sydney region. Adjustment assistance to industry may be desirable where there are substantial changes in tax rates. Assistance should be determined and funded explicitly by the Government.*
- ♦ *the Government determines the allocation of revenue from such taxes to general funds and specific environmental trusts. This framework should apply to regions outside the SWB's area of operation as well as to the SWB.*

The PWD has noted that sewerage treatment works in country towns may be particularly sensitive to the discharges of a small number (one or two) customers. In these circumstances the calculation of trade waste charges should take into account the risks attached to the investment in the treatment works and other infrastructure.

The above framework would put the current arrangements on a more rational basis where the trade waste charges are used as a tax on the original source of pollution.

It may be that the EPA will set environmental standards and taxes solely in terms of discharges from sewage treatment plants. The SWB could then provide appropriate signals by incorporating these standards and taxes in the standards and charges applied to its customers.

The extent to which current charges exceed the costs of treating trade wastes is uncertain. This issue needs to be resolved. The SWB has indicated that the charges currently set for discharges that meet the 1994 standards are based on their best estimates of the costs of transporting, treating and disposing of

these wastes. SWB have also indicated that in some cases charges are below estimated costs. It is difficult to determine the costs that discharges above these standards impose on the SWB. However, the SWB has indicated that there is a tax component at discharge levels above the 1994 standards. As trade waste charges increase exponentially, this tax component may increase rapidly for higher discharge levels.

Recommendation 12.4: Pending clarification of the current tax component of SWB's current charges, the Tribunal recommends that the current fees for discharges which meet the 1994 guidelines should be nominated as user charges to be retained by the SWB. Charges above this level should be nominated as a tax, the funds from which would be transferred to the environmental trusts. This regime could continue with both the charge and tax components remaining at current levels until 1994. In the period up to July 1994 the SWB should review the cost basis for these charges and report the results to the proposed consultative committee.

The Government should be responsible for determining the tax rates to be levied for pollutants.

Separation of the tax and user charge will not prevent increases in the current tax components. Such taxes need not be limited to concentrations that are above the 1994 standards. Pollution taxes could be levied on all discharges of particular pollutants, reflecting the environmental costs imposed on society. In reviewing such taxes, or alternative policy options, the EPA should have regard to the impacts on industry and commerce. The Tribunal expects that such policies would be supported by appropriate cost-benefit studies.

The SWB has indicated that it generally endorses the above recommendations.

12.8 Summary of recommendations

Cost-reflective trade waste charges depend on a framework which establishes appropriate accountabilities and responsibilities. The key elements of this framework are:

- ♦ *the EPA needs to set effluent standards from wastewater treatment plants*
- ♦ *the SWB should set absolute pollutant levels for the wastewater it receives, and set charges based on the costs of treating these wastes*
- ♦ *usage charges should vary according to the costs of treatment at the receiving plant*
- ♦ *the SWB should retain the revenue from the usage charges it sets*
- ♦ *the Government should set pollution taxes which are explicit and separate from usage charges and provide such adjustment assistance as it considers appropriate as a CSO*

- *the Government should determine the allocation of revenue from such taxes*

The SWB should establish a consultative committee with representatives of the SWB, the EPA, industry and independent experts to provide consultation on charges and standards.

Pending clarification of their tax component, the current fees for discharges that meet the 1994 guidelines should be nominated as a user charge to be retained by the SWB. Charges above that should be nominated as a tax, the funds from which should be transferred to the environmental trusts.

The HWC should adopt a transparent process for the proposed review of its trade waste charges. The consultative process proposed for the SWB may provide a suitable model.

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13 DEVELOPER CHARGES AND URBAN DEVELOPMENT

13.1 Introduction

Developer charges are an important source of funding for the capital works programs of water authorities. By some measures there appears to be near full cost recovery; certainly there is a much greater rate of recovery than in the past. However, the level of cost recovery and the method of calculation vary greatly between authorities. Even within the SWB region, cost recovery varies from 61% to 100%.

In addition to funding, in part, the investment required for new urban development, developer charges can help signal the costs of servicing particular locations. Given the uniformity of annual access and usage charges for residential customers within supply areas, developer charges are the only means of signalling the variations in costs within a supply region.

This chapter:

- ♦ outlines current approaches to the calculation of developer charges
- ♦ considers desirable criteria for developer charges
- ♦ reviews the potential impact of developer charges on affordability and urban development
- ♦ provides recommendations on methods for assessing developer charges

The Tribunal commissioned a review of developer charges by a consultant, David Brett which was released as a discussion paper concurrently with the Interim Report.

13.2 Current approaches to developer charges

13.2.1 The Sydney Water Board

Current charges

In general the SWB has sought to base developer charges on the cost of the assets required to service the development.

The cost of infrastructure varies considerably across Sydney, from the flat plains along the Parramatta River, which are relatively cheap to serve, to the steep and difficult areas on the perimeter of the Sydney Basin. On the disposal side, it is much cheaper to dispose of sewage into the ocean than the rivers, because the ocean has a greater capacity to assimilate discharges.

Typically, total developer charges are around \$5,000 to \$10,000 per lot. The SWB estimates that developer charges recover from 61% to 100% of full costs, with an average recovery rate of 85%. Variation in cost recovery reflects the use of historical cost accounting and/or the pursuit of an affordability objective.

Developers provide or fully fund reticulation (typically \$3,000 per lot).

In the past the SWB did not seek to recover headworks costs.⁶⁶ However, it now recovers some headworks costs in Penrith and Rouse Hill. Costs range from \$940 to \$2,400 per lot for sewage treatment and water headworks, excluding dams.

Charges for major works such as large water trunk mains and sewer carriers are the major components of the developer charges. Charges are based on the actual cost of works constructed within the past 25 years to serve a particular release area. Since 1988 the Board has determined major works charges on the basis of area rather than per lot, to encourage compact development. Charges range from about \$2,200 to \$10,290 per lot.

The SWB has adopted a current-cost method of determining major works charges. This involves inflating historical costs to current values, using an index for inflation.

Proposals for reform of developer charges

The Rouse Hill case introduced the following important changes to SWB practice in relation to developer charges:

- ♦ the addition of headworks (such as water treatment plants and sewage treatment plants), and drainage facilities, to developer charges
- ♦ a target of 100% full cost recovery (a target that may not be achieved because of the risk assumed by the SWB in respect of the rate of development)
- ♦ the intention of recovering a return on capital at a rate of interest that compensates for the time value of money. (Previously, the SWB attempted to inflate the initial capital cost by the CPI.)

The SWB would like to apply full cost recovery at the fringes of the city. In the case of recovery of past investment, the SWB charges interest at the rate of the CPI, but it would like to increase the interest rate to reflect the time value of money.

⁶⁶ Headworks include dams, water treatment plants and sewerage treatment plants. Major works include reservoirs, large water and sewer mains, pumping stations and drainage outfall systems. Reticulation includes water and sewerage reticulation local to the development in question and lead-in mains.

In its submission to the 1993/94 annual price determination, the SWB proposed changing the method of calculation of developer charges to one that takes into account future income and expenditure streams as well as the capital outlays required for the development. This follows the approach recently adopted by the HWC.

13.2.2 Hunter Water Corporation

The HWC has altered its approach to developer charges to conform with standard, commercial approaches to project evaluation.

Under this approach, the HWC forecasts future net revenues from each development and offsets these against the initial investment using standard discounted cash-flow techniques. The discount rate includes an allowance for risks to the HWC arising from uncertainty about the timing and extent of future developments using the infrastructure. The developer charge is then calculated as the up-front payment required for the HWC's investment to break even.

This approach is applied to major works and headworks. It provides for full cost recovery in the sense that sufficient funds are received up front or through annual charges to justify investment in the infrastructure. The extent of up-front cost recovery depends on an assumed level of annual charges.

Developer charges are differentiated geographically to reflect the cost of providing infrastructure in different areas and are indexed quarterly by the Building Cost Index. Headworks charges currently average about \$1,350 per lot for water and \$1,150 per lot for sewerage. Major works charges for water supply and wastewater distribution average about \$800 and \$1,050 per lot, respectively. However, these charges are then discounted to allow for future net revenues from a development, as explained above.

The HWC believes it now has developer charges set to reflect the net cost of individual developments, with the necessary safeguards to avoid double-dipping. The HWC envisages that large medium-density residential and commercial developments will be assessed on the same basis as standard residential development in the future.

Reticulation is included in the financial model as both a revenue and a cost. Developers either provide reticulation directly or fully fund its provision. The HWC does not seek developer charges for stormwater infrastructure which is commonly a local government responsibility.

In summary, the HWC's calculation of developer charges differs from practice elsewhere in that:

- ♦ The HWC seeks to earn a risk-related real rate of return on the component of the investment it funds. This return takes into account the time value of money and the risk associated with the business of developing and providing water services.
- ♦ When setting developer charges, the HWC makes an explicit allowance for the expected stream of periodic charges .

13.2.3 Gosford City Council

Gosford City Council levies developer charges but considers that the current charges are generally well below the cost of the infrastructure provided to the development. At present developer charges (including reticulation but not drainage) range from \$6,800 to \$9,000 per lot. The Council is in the process of adapting PWD methodology for calculating developer charges (outlined below).

Developers fully fund reticulation. (Typical costs are similar to the costs of the SWB: \$3,000 per lot.)

A uniform headworks charge of \$1,800 per lot is levied. This is around 33% of the estimated capital cost of \$5,480. Gosford Council estimates that when recurrent charges are taken into account about half the costs are recovered. Gosford considers a uniform headworks charge is appropriate as the area is served by a single network with uniform cost characteristics.

Developer charges for major works range from \$2,000 to \$4,200 per lot. The range of costs is based on the varying costs of developing in different areas. With the addition of recurrent charges for servicing debt, Gosford reports that it recovers from 130% to 167% of the capital cost.

Taking headworks and major works together, the recovery rate appears to be 83% to 87%.

13.2.4 Wyong Shire Council

At present Wyong fully recovers reticulation and major works costs but only part of headworks costs. Total developer contributions (including reticulation and drainage) can range up to \$11,200.

Developers fully fund reticulation. (Typical costs are a little higher than the costs of the SWB: at \$3,600 per lot.)

Headworks costs are around \$5,050 per lot, marginally lower than for Gosford. Up-front developer charges are estimated at \$1,550 per lot (compared with \$1,800 per lot in Gosford), which is around 31% of the estimated capital cost. Wyong estimates that when recurrent charges are taken into account, about 63% of the costs are recovered, somewhat lower than the 83% to 87% rate of recovery estimated by Gosford.

Wyong Shire Council reports that it recovers 100% of the cost of major works in the form of up-front developer charges, which can range up to \$3,400 per lot, depending on the costs of developing in different areas.

13.2.5 Country towns

The level of charges varies widely from council to council in country towns. The median charge is \$1,400 per lot for water and \$1,100 per lot for sewerage. Councils have used a variety of methods to justify the charges, based either on recouping past expenditure or providing for future expenditure.

The cost of infrastructure is subsidised through the country town water supply scheme administered by the Department of Public Works. The taxpayer makes up half the difference between the cost of the facility and the amount recovered by the local council from the developer, so there is a reduced incentive for councils to pursue developer charges. However, the PWD encourages councils to impose developer charges and has issued guidelines for the calculation of these charges. The PWD has advised the Tribunal that under reforms to the assistance scheme presently underway, councils will be expected to largely finance new capital works from their own sources, including developer charges.

Under the present PWD guidelines, developer charges are composed of three parts:

- i a share of the asset value of existing infrastructure committed to serving the development.

PLUS

- ii a share of the cost of the capacity available to service future developments

LESS

- iii a share of the net outstanding debt.

In practice, this approach is equivalent to calculating the developer charge on the basis of the value of existing assets in the system, less any debt outstanding, for each existing ratepayer. In presenting this approach, the PWD has drawn an analogy with a club owned by its members where the customers are its members. Under this approach:

- ♦ current value of the net assets of the system represents the equity of existing customers in the system

- ♦ new customers should buy into the club by paying an amount equivalent to the net assets of the club

The PWD guidelines adjust this basic approach to recognise that different developments utilise different amounts of scheme assets. The guidelines can be used to calculate charges on a sub-regional basis.

13.3 Principles for developer charges

Developer charges can serve two related functions. Firstly, they provide a source of funding for the infrastructure required for new urban development. Secondly, and importantly, developer charges provide signals regarding the costs of urban development which encourage less costly forms and areas of development.

Water suppliers have placed increasing reliance on developer charges as a source of funding. This is due to a reduction in other sources of funding, such as loans and the desire of the supply authorities to reduce debt levels.

Developer charges, like other general revenues, can be regarded as a non-debt source of funds. The extent to which developer charges, together with other general revenues, are used as a source of funding should be driven by the overall financial position of the supplier and its capacity to service debt.

A key principle for pricing infrastructure for new developments is that the prices set should signal the true relative costs of providing such infrastructure. This will ensure that the charges do not distort the form and sequence of urban development.

Options for pricing to fund infrastructure include:

- ♦ developer charges
- ♦ uniform annual charges with general revenue funding infrastructure requirements
- ♦ region-based annual charges
- ♦ private sector provision.

The manner in which costs are recovered can have an effect on house prices and affordability. For example, when paid by the developer up front, at least part of the cost of the infrastructure will be passed on to the purchaser of the land through higher land prices in new areas. This will, in turn, affect house prices in existing areas. Region-based charges may not affect costs of supply of housing in new areas directly but they will affect affordability through the higher outgoings new home owners have

to meet. In common with up-front charges, higher annual charges in new release areas may push up prices for houses in existing areas.

Use of uniform annual charges to pay for new infrastructure costs spreads the costs for new developments over all customers (not just those in new developments) and will reduce the effect on affordability. *However, it will also mean that developers and purchasers in new areas are not given signals regarding the relative costs to society of providing infrastructure for these developments.*

Full cost recovery through developer charges gives the clearest price signal about the varying costs of developing in different areas and at varying densities and levels of service. A signal of similar clarity will result from private sector provision of infrastructure (unless the private investment is subsidised in some way).

The Housing Industry Association (HIA) rejects the approach of full cost recovery through developer charges for inefficient public monopolies. The question of whether prices should be set solely on the basis of efficient costs or have regard to actual costs is a complex one which applies to all areas of pricing (see Chapter 3). Clearly the Tribunal wishes to move prices towards efficient costs and would not wish to 'reward' inefficiency. However, a rapid change to a system of pricing on the basis of efficient costs might adversely affect the financial stability of the suppliers and the sustainability of the services provided.

13.4 Issues in the current approaches to developer charges

13.4.1 Subsidisation of fringe development in Sydney

It is widely believed that purchasers of land at the fringe of the city do not pay the full cost of development.

By some measures there appears to be near full cost recovery; certainly there is a much higher rate of recovery than in the past. The recent Industry Commission report⁶⁷ concluded that the fringe is not heavily subsidised; however, it found that total charges (not just developer contributions) for water and sewerage infrastructure would have to increase by an average of 16% to remove the excess of costs over charges.

On the Industry Commission's estimate, full cost recovery would increase charges and rates by 16%. This increase would affect some areas more than others, depending on the current level of cost recovery. Areas where there is now full cost recovery would not change at all.

⁶⁷ Industry Commission, *Taxation and Financial Policy Impacts on Urban Settlement*, AGPS, 1993.

13.4.2 Coverage of developer charges

Two issues relate to developer charges. Firstly, there is the question of whether such charges should apply to redevelopments within established service areas as well as new areas. Secondly, there is the question of the extent of the water and sewerage infrastructure that should be recouped through developer charges.

Redevelopment of existing areas can increase the demands placed on existing infrastructure. This may bring forward the need for investment to increase capacity or maintain existing water and effluent quality with higher throughputs. Where this is the case, it would seem appropriate for the water suppliers to levy a developer charge.

The extent to which the costs of headworks are recouped through developer charges varies considerably. PWD guidelines provide for a very broad coverage of assets. For example, the guidelines propose that dams, which may service the system as a whole, be included in the developer charges. In contrast, the SWB, Gosford and Wyong have sought to recover only part of the headworks costs. The SWB explicitly excluded dams from the headworks charges for the Rouse Hill development.

In its submission to the Tribunal, the Department of Housing argues that there needs to be a close nexus between the development and the infrastructure covered by developer charges. This nexus becomes less clear for some components of headworks. The importance of the nexus is reinforced if developer charges are intended to signal the relative costs of different locations.

The inclusion of dams and other costs common to all areas of development does not affect the quality of developer charges as a signal of relative location costs. However, it can affect the absolute magnitude of the developer charges. It will also affect the extent to which new entrants pay for common assets such as dams.

In response to the Interim Report, the HIA argues that the inclusion of headworks costs discourages efficient demand management and cannot be supported. This requires scarcity of bulk water to be signalled through the incorporation of dam costs in the usage charge for water.

However, the PWD and Gosford and Wyong Councils argue that inclusion of all infrastructure, including dams, in the calculation of developer charges is essential for full cost recovery. The PWD argues that the exclusion of dams could "encourage short-term, dysfunctional behaviour".⁶⁸

⁶⁸ Public Works Department, Response to Interim Report, 1993, pB2.

One view is that, since demand growth is coming from new entrants, it is these new entrants, and not existing customers, who should face the costs of the scarcity of these resources. If so, system wide costs such as dam costs should be incorporated in developer charges rather than usage charges. Against this, it may be argued that since all customers are drawing upon the system, the value of marginal increases or decreases in consumption should be signalled to all customers through the incorporation of dam costs in usage charges.

The Industry Commission recommends that:

"While it is not necessary to charge explicitly for costs that are common to all developments to transmit efficient location incentives within cities, cost recovery is desirable for reasons of efficient resource management and decision making in relationship to new infrastructure."⁶⁹

In essence, the Industry Commission sees the inclusion of shared costs such as headworks costs as a discipline on the supplier to discourage the provision of infrastructure too early, or with excess capacity.

The HWC has pointed out that under its net present value (NPV) approach (discussed below), inclusion of some component of the dam capital costs is necessary in any case. The inclusion, in future usage charges, of the costs of the next increment of capacity must be balanced by the inclusion of a pro rata share of the capital costs in the developer charges. If these streams are not matched, developer charges will be driven too low. The pro rata factor chosen will determine allocation of the costs of new capacity between existing and new customers.

In summary, it would be appropriate to leave open the question of the extent to which common costs such as dams should be incorporated in the calculation of developer charges for further review.

13.4.3 Recovery of costs of existing assets

All water authorities grapple with the problem of trying to recover the cost of existing assets when the serviced land is subdivided some time later than originally planned. A common approach is to charge developers the original capital cost of the investment inflated by some index. Through time the inflated charge may become increasingly out of line with the real value of the infrastructure as measured by the present value of expected cash flows. The land may eventually become sterilised from development.

Water suppliers should not attempt to recover more than the infrastructure is worth. In some cases this will be substantially less than

⁶⁹ Industry Commission, *op. cit.*, p159.

the initial capital cost, not more. Less than full cost recovery will sometimes be the consequence of a poor investment decision. The loss incurred due to poor investment decisions should be met by the risk taker, not the purchaser of land. In part these risks arise from the planning process which, arguably, may have been biased towards early provision of infrastructure. The costs of an idle asset in the ground will be made more explicit for government if its effect is to lower the government's dividends and its net equity in the suppliers.

In some cases charges that allow for economic depreciation may be significantly lower than those charged currently in existing areas. This situation would apply considerable pressure on water authorities to make good investments. Water authorities would be required to refrain from loading up developer charges where the rate of development was slower than expected. The incentive for better investment decisions could be sharpened if the water authorities were required to publish the financial feasibility studies upon which the developer charges were based.

An alternative to allowing for economic depreciation is to apply charges immediately the water authority makes an investment. This would also apply pressure to the water authority to get the initial investment right. Charges are not typically applied when the investment occurs (except reticulation provided directly by the developer).

The Interim Report seeks comments on the risks borne by the water suppliers. The HIA has responded that it considers that the suppliers bear few risks and that suppliers should not earn a return on developer funded assets as this involves 'double dipping'.

13.4.4 Rate of return on assets

In the past, a return on equity has often been foregone by water authorities. Water prices were often set to break even. The exclusion of a return on equity may result in prices that understate the true cost of the services provided.

Providing infrastructure for water services comprises two businesses: developing the infrastructure, and operating the system of services. In the absence of private provision of infrastructure, water authorities initially take on risk much like that faced by a land developer. The high up-front risk and subsequent low risk associated with operations should be taken into account in the economic appraisal of investment.

13.4.5 Possibility of double-dipping

All water authorities are taking steps to avoid double-dipping. The water authorities state that they wish to subtract expected periodic charges from what would otherwise be applied as a developer charge.

The Industry Commission argues that if suppliers earned a rate of return on assets provided by developers or funded through developer charges it would result in double-charging customers. The proposal is based on the view that:

"A rate of return is designed to provide an authority with sufficient revenue to service its debt and to pay the community a return on equity in a [supplier]... In the Commission's view, capital provided to authorities free of charge by developers or through developer charges does not change the wider community's equity in that authority. Accordingly, the addition to [a supplier's] base of this capital which has been fully paid for by customers purchasing serviced land does not necessitate an increase in capital charges."⁷⁰

In its draft report the Commission proposes that assets provided or funded by developers be excluded from the supplier's asset base for the purposes of calculating rate of return requirements.

Several suppliers and the State Treasuries dispute this. NSW Treasury policy is that a rate of return should be earned on developer-funded assets. A common view is that up-front developer charges are a price like annual charges and do not involve the purchase of equity by the customer. Hence, there is no reason to differentiate between assets funded by developer charges and those funded through other charges or borrowings. It has also been argued that where the supplier has the responsibility to maintain and replace the assets, pricing should provide for both depreciation and a return on these assets.

In its final report, the Industries Commission argues that developer-funded assets should be incorporated in the asset base for the purpose of rate of return calculations, but that any return on these assets should be rebated to the customers on whose properties developer charges were levied, to avoid double dipping.

In his report, David Brett argues that as the customer does not take on any risk of ownership, payment of a developer charge should not be seen as buying equity in the scheme. On this basis he considers it entirely appropriate that the supplier earn a rate of return on the assets. However, he argues that as the developer charges are paid, these assets should be revalued at their economic value based on future costs and income streams. This is more feasible under the net present value approach adopted by the HWC where there is already an implicit agreement on future price paths. Under this approach the value of the assets would, in practice, be discounted by the capital contribution and a return would not be earned on this component.

⁷⁰ Industry Commission, *Water Resources & Wastewater Disposal*, AGPS Canberra, 1992, pp.75-76.

13.4.6 Recommendations on the criteria for developer charges

Proposal 13.1: Having considered the principles for setting developer charges and the particular issues outlined above, the Tribunal proposes that developer charges should:

- ♦ *involve full net cost recovery*
- ♦ *reflect variations in the costs of servicing different development areas*
- ♦ *result in new developments meeting the costs, but no more, of the services provided through developer charges and/or annual charges*
- ♦ *cover infrastructure expenditures which can be clearly linked to the development in question and are able to be forecast reliably*
- ♦ *be applied to existing and fringe areas alike*
- ♦ *be calculated transparently so that developers can understand and assess the calculated charges.*

13.5 Assessment of current approaches

The Hunter Water Corporation's net present value approach to feasibility analysis as the basis of calculating the developer charge is a useful model. In principle, the net present value approach should ensure that the correct signals of the relative costs of the developments in different locations are given to customers. Investments would be undertaken only where appropriate risk-related return could be earned. Under this approach, shortfalls between future costs and revenues affect developer charges. The HIA argues strongly against this and advocated variations in regional annual charges to fully reflect costs.

One point of issue with the net present value approach is the indexation of charges over time, dating from the provision of infrastructure. Ideally, such charges should be based on the opportunity cost of the infrastructure. If development has proceeded less quickly than anticipated, excess capacity is likely to push down the economic value of the assets. The approach should be applied to existing and fringe areas alike.

Since the Interim Report was published, the IC has released its report, *Taxation and Financial Policy Impacts on Urban Settlement*. The IC considers that:

"... A feasibility or cost-benefit approach has merit in most cases as long as it is transparent. Such an approach encompasses up front costs and charges and recurrent cash flows. It limits developer contributions to the amount necessary to equate total charges for relevant (attributable) service provision to total costs in particular areas."⁷¹

⁷¹ Industry Commission. *Taxation and Financial Policy Impacts on Urban Settlement*, 1993, p145.

The HWC states that the AWRC has endorsed the NPV approach in principle.

Both the PWD and Wyong Council have expressed concerns about the HWC's NPV approach. Some of these concerns relate to the principle of the NPV approach while others relate to the specific application of the NPV approach by the HWC.

It should be noted that the Tribunal has endorsed the NPV approach in principle, but not the specific HWC application. Practical differences between the approaches can be easily overstated, but the NPV approach has basic advantages, as outlined by the IC, in the quote above.

Concerns with the NPV approach appear to revolve around:

- i uncertainties surrounding forecasts of future costs and revenues
- ii the variability of developer charges with changes in annual charges
- iii the equity of the allocation of costs between existing and new users which may result

Problems of uncertainty and the need to forecast the future are central to many aspects of decision-making, especially in regard to investment decisions. The benefits of a more definite or mechanical means of calculating developer charges need to be weighed against the benefits of better pricing and investment signals. On one view, the variability of developer charges to changes in annual charges is an advantage rather than a disadvantage. It signals that up-front and annual charges should be structured so that in total they neither over nor under recover costs. Equity issues arise in considering how costs should be borne through time and across customers. These issues are particularly pronounced if there is a sharp shift from the current approach to the NPV approach which affects financing strategies. There may be a need to modify these impacts by suitable transition arrangements.

The PWD approach is more backward looking than the net present value approach. As noted above, it views the system as a club and asks new members to pay a buy-in price based on the value per customer of the existing assets. It is questionable whether the club analogy is appropriate. A customer does not take on the risks of ownership and the purchase of services does not normally bestow an equity interest. Local governments and the State Treasury may have conflicting views on who bears the ownership risks of council businesses. If councils bear the ownership risks, ratepayers may also be seen to bear the ownership risks. Whilst many ratepayers may also be customers, their interests as ratepayers should not be confused with those of customers. The ownership interests of the council, and by extension the ratepayers, may be best served by

ensuring that these operations provide an appropriate return on their equity interest, whether through developer charges or general revenues.

The PWD approach may provide incorrect signals about the relative costs of providing services to new areas. It appears that the approach can include costs which are determined by the total level of demand more than the location of new developments. In his report, David Brett has argued that developer charges vary substantially according to the stage of the system's development. The approach may result in relatively larger developer charges in the early stages of a system's development.

The SWB seeks to recover the costs of assets which have a nexus with a development. Whilst it has some similarities to the PWD approach, the SWB's policy does not include an offset for the level of debt funding of the system and does not cover as broad a range of assets. Whereas the PWD approach is based on assets per existing customer, the SWB approach averages costs over capacity. In theory, the net present value approach would generate the same results if future annual charges accurately reflected the future annual costs for servicing the area. In practice, this will not be true for all areas unless differential regional charging is introduced. Hence, this approach may recover more or less than costs.

Overall, the Tribunal considers that a net present value approach provides an appropriate basis for the calculation of developer charges, subject to the Tribunal being satisfied that the approach can be implemented in a satisfactory manner with appropriate transitional arrangements. The Tribunal believes that a uniform approach to the assessment of developer charges in the Sydney, Central Coast and Hunter regions is particularly desirable. Ideally, development decisions should not be biased by differences in approaches to developer charges.

Proposal 13.2: The Tribunal endorses, in principle, the net present value approach for calculation of developer charges. A working party comprising representatives of the Tribunal secretariat, the PWD and suppliers in the Sydney, Central Coast and Hunter regions has been directed to examine the application of this approach on a uniform basis.

13.6 Impacts of reform

13.6.1 Incidence of increases in developer charges

Developers will attempt to shift the burden of developer charges forward to the purchasers of developed land or backwards to the owners of the undeveloped land. Who bears these charges will depend on the sensitivity of the participants to price changes.

Initially, increases in developer charges will be shared by developers and purchasers if both groups are fairly insensitive to price changes. Analysis

undertaken by the Industry Commission indicates that this seems to be the case. The price elasticity of demand for land on the fringe of Sydney is estimated as minus 0.077⁷², that is, an 0.7% decrease in demand for a 10% increase in price. Kirwan's estimate of the elasticity of demand for housing land of -0.677⁷³; higher, but it still indicates that housing demand is inelastic.

In the longer term, both groups will become more sensitive to the price increase. Purchasers will seek lower price areas, smaller blocks of land, and smaller houses, or switch from houses to flats. Demand for large blocks of land on the fringe of the city will decline.

As demand falls, developers will suffer some losses on their stocks of land. They will supply smaller blocks if possible, and shift production to where the market is less sensitive to price increases. In the longer term marginal developers will leave the land development market. This will, in time, reduce the supply of developed land. Developers will leave the market until demand for developed land raises prices to a level that restores their previous after tax risk-related return. Hence, more of the developer charges will be borne by purchasers in the long-term.

13.6.2 Effects of increased charges on urban form

Although the prices of established housing (and other substitutes) would rise, if charges to developers increased, they would not rise as much as the price of developed land on the fringe. This is because new housing and established housing are not perfect substitutes. The price of housing at the fringe would become *relatively* more expensive than established housing. This would reduce the incentive to develop and purchase housing at the fringe, and lead to a more compact urban form.

13.6.3 Effects of increased charges on housing affordability

As noted above, increased charges would increase the general price of housing. The increases would be greatest at the fringe, but the price of existing housing would also increase, as would rental rates. Thus the effects would be felt mainly by purchasers at the fringe, but also by purchasers of existing housing and renters.

The long-term effect of a general increase in prices would be that purchasers might choose to devote fewer resources to housing. This might occur through smaller blocks, smaller houses or more compact development. There would also be some prospective purchasers for whom, in the short-term, the deposit gap would widen. While increased

⁷² Industry Commission. *Taxation and Financial Policy Impacts on Urban Settlement*, 1993.

⁷³ Richard Kirwan, *Financing Urban Infrastructure: Equity And Efficiency Considerations*, National Housing Strategy Background Paper No. 4, August 1991, pp.105 - 106, and Endnotes No. 55 on p. 133.

prices tend to reduce affordability, this can be better addressed by Commonwealth Government social justice programs and State Government housing assistance programs.

Higher charges would also make for better investment decisions and more compact development, which would also lower housing costs in the longer term. This would benefit everyone, including low-income earners.

There would be a release of subsidies for distribution to low-income earners. At present, a significant proportion of subsidies at the fringe of the city is appropriated by middle and upper income groups. These subsidies are paid by existing ratepayers in the main, including the disadvantaged (although the major cross-subsidy involves commercial customers subsidising all residential customers).

13.7 Legal Issues

The Public Works Department formula was challenged in the NSW Court of Appeal (*Allsands v Shoalhaven City Council*) where the court found that the method was not consistent with the legal interpretation of the words "recoupment of costs" in Section 94 of the Environmental Planning and Assessment Act.

Amendments to the Water Supply Authorities Act and the Local Government Act were passed by the NSW Parliament recently⁷⁴. These amendments were designed to overcome the developer charges issues raised in the *Allsands* case. The new provisions require that consideration should be given to any guidelines issued by the Department of Public Works.

Legislation relating to the establishment of the Hunter Water Corporation covers the application of the net present value approach.

To extend the net present value approach to Wyong and Gosford may require inclusion of this approach in the PWD guidelines or, alternatively, separate legislation. Extension of the NPV approach to the SWB may also require legislative amendments.

⁷⁴ Local Government (Consequential Provisions) Act 1993 No. 32.

13.8 Summary of recommendations

Developer charges should:

- ♦ *involve full net cost recovery from the beneficiary*
- ♦ *reflect variations in the costs of servicing different development areas*
- ♦ *result in new developments meeting the costs, but no more, of the services provided through developer charges and/or annual charges*
- ♦ *cover infrastructure expenditures which can be clearly linked to the development in question and are able to be forecast reliably*
- ♦ *include ancillary costs*
- ♦ *be applied to existing and fringe areas alike*
- ♦ *be calculated transparently so that developers can understand and assess the calculated charges*

The Tribunal endorses, in principle, the net present value approach for calculation of developer charges. A working party comprising representatives of the Tribunal secretariat, the PWD and suppliers in the Sydney, Central Coast and Hunter regions has been directed to examine the application of this approach on a uniform basis.

14 IMPACTS OF PROPOSALS

14.1 Introduction

The shift from a water charging system based predominantly on a fixed charge and a property tax to one in which the usage charge is more important results in some consumers paying more. Depending on the magnitude of these effects, some form of adjustment assistance may be necessary for those who have limited capacity to pay higher bills.

This chapter:

- ♦ discusses analyses of impacts
- ♦ considers the broad impacts of price change
- ♦ examines the implications of user-pays for tenants
- ♦ discusses impacts on economic development

Analysis of the effects of a price change is limited by lack of data. The following section discusses the Tribunal's efforts to increase the amount of information available.

14.2 Recent distributional analysis

Knowledge of the income and usage patterns of customers is required to determine the impact of a price change. Supply authority databases do not contain this information, making analysis difficult. Therefore, alternative sources of this information are required.

The Industry Commission, as part of its *Inquiry into Water Resources and Waste Water Disposal*, commissioned a report from Tasman Economic Research into the distributional effects of cost-based pricing. This analysis used data from the 1985/86 Income and Distribution Survey conducted by the Australian Bureau of Statistics (ABS). Data on 421 households in Melbourne was analysed in this study.

The Tribunal commissioned King and Bradbury of the Social Policy Research Centre to examine the potential for compensating customers who would be adversely affected by a price change and has received their report, *Distributional Impacts and Compensation Policies*. This report considers the distributional impact of the existing price structure and of the introduction of a pricing regime similar to that applied by the Hunter Water Corporation.

The Tribunal engaged a consultant⁷⁵ to collect consumption and demographic information through a survey of 2,000 households. This data was then

⁷⁵ Reark Research Pty Ltd, *Customer Viewpoint Household Survey of Water, Electricity and Public Transport Usage*, 1993.

merged with billing data on household consumption from the electricity and water supply authorities. The survey is complete with 75-80% of respondents providing access to usage data.

The Tribunal also commissioned the development of a microsimulation computer model, based on the survey sample, which allows analysis of pricing options. This model considers the total impact of proposed price changes for all three NSW monopoly services: water, electricity and transport.

The model is near completion and some of its preliminary results are discussed in Section 14.3.

The direct effects of price changes on residential customers may at first glance appear to be simple. Other issues need to be considered. What is the impact in comparison to the capacity to pay? How is demand by consumers affected by the price change? For example, demand for water for inside use, which is largely necessary and difficult to reduce, would have a lower elasticity than water for outside use.

There is also the flow-on effect of the potential reduced water costs of businesses. The extent that these are passed forward to consumers is unknown.

It has been argued that user-pays systems for water, with the elimination of property tax, will impact adversely on low income families, in particular on larger families living in low value properties. User-pays, it is argued, impacts most severely on those with the least capacity to pay and least capacity to reduce consumption. People on low incomes do not have the disposable income necessary to buy water-efficient appliances and watering systems. Large families may be less able to decrease water consumption. The following section examines the extent to which these arguments are likely to be true.

14.3 Impact of specific pricing proposals

This section discusses the impact of the pricing structure proposed by the SWB for 1993/94 and subsequently endorsed by the Tribunal. The proposal has the following key elements:

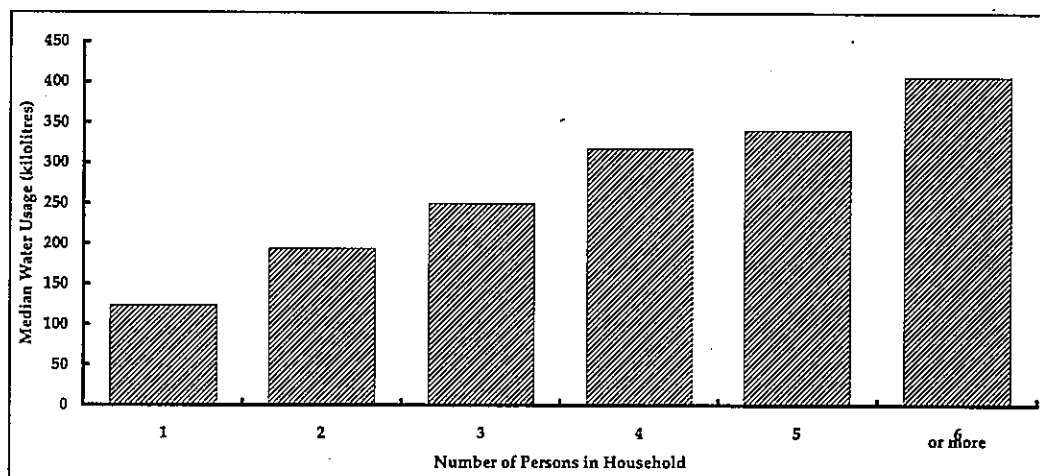
- removal of the Special Environmental Levy
- a flat usage price of 65 cents per kilolitre for all water
- small increases in sewer and drainage base charges

Reark Research Pty Ltd conducted a survey for the Tribunal which provided data for 1,200 households within the SWB area. The survey data permits analysis of the effects of the pricing proposal by a number of key demographic variables. It was used by the Tribunal in its consideration of the

1993/94 annual pricing proposal. This section summarises some of the key points from the analysis.

The first two figures demonstrate how water usage varies with household size. Figure 14.1 shows the median water usage per household by size of household. There is a clear increase in median water usage as household size increases.

Figure 14.1 Median water usage by number of people in household



Median consumption by number of children is shown in Figure 14.2. The graph also compares usage by low income households with all households in the sample. For households with more than two children, median water usage is greater for the low-income group than for the sample overall. The data suggests that the main impact occurs for the first child. Each additional child increases the amount of water used but the effect declines. For example, the increase in usage from 2 to 3 children is approximately 35kL or \$22 per annum at the new usage rates.

Figure 14.2 Median water usage by number of children in household

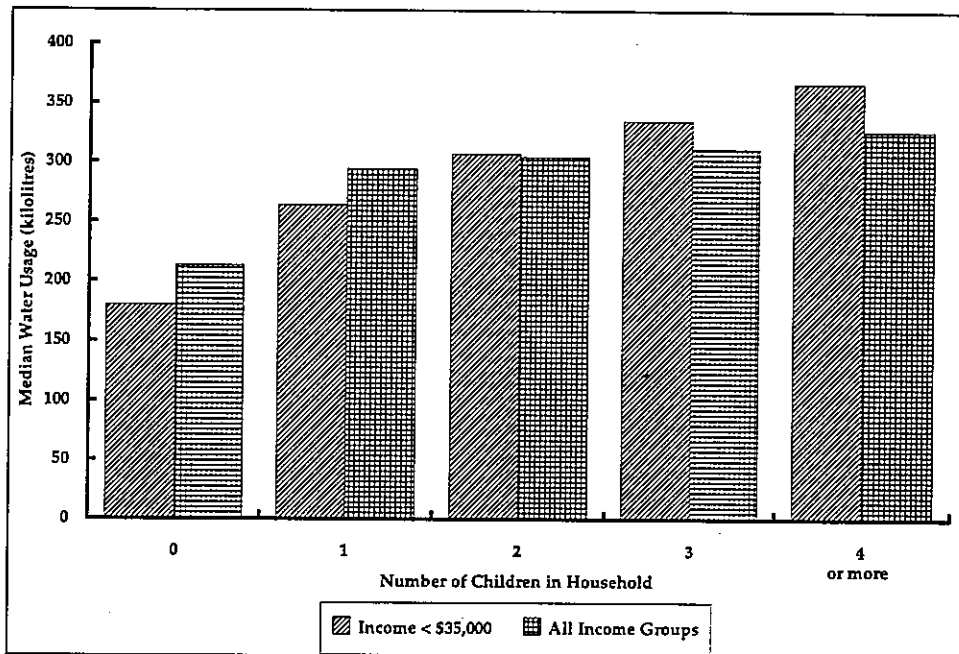
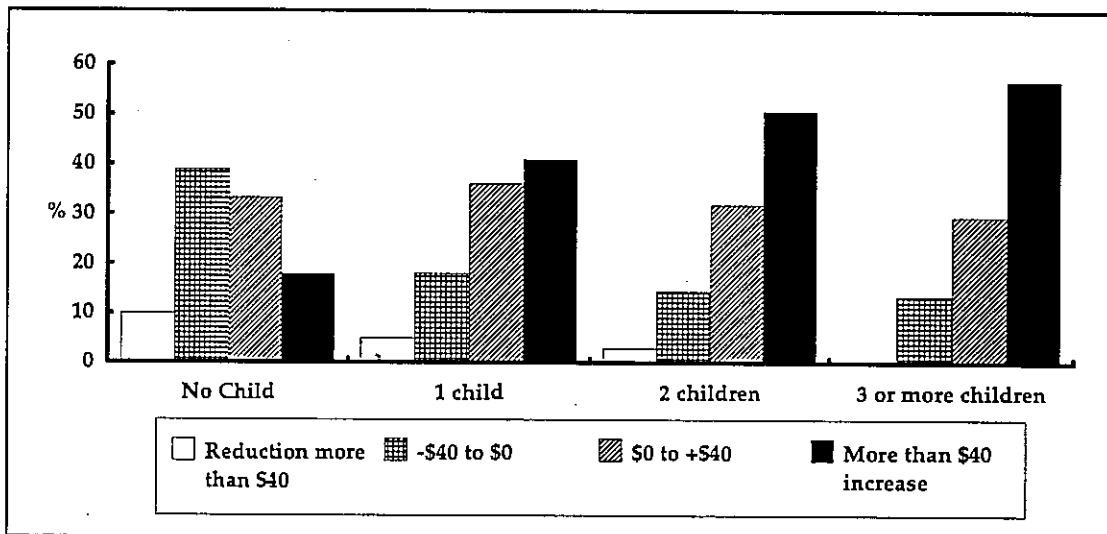


Figure 14.3 illustrates the net effect of the implementation of the SWB pricing structure in 1993/94 by number of children for those families with a total household income of less than \$35,000, and *with no change in water usage*.

Figure 14.3 Net effect of the SWB proposal on low-income families



It is clear from this graph that as the number of children increases, the potential impact on the family increases if water usage cannot be reduced.

This analysis shows:

- ♦ there is a relationship between household size and water usage
- ♦ large, low income families on average use more water than equivalent size families with medium to high incomes
- ♦ the majority of families with only one child will be paying less or up to \$40 more in the first year. Families hit hardest are those on below average household incomes with two or more children, who are unable to reduce their water usage

Water usage patterns for households may be compounded by other property characteristics, such as size of block. Fifty-seven percent of families with three or more children have water consumption such that their bills would increase by more than \$40. However, almost 15% consume so little water that their bill actually falls. In any event, there may still be an adjustment problem for those who may not be able to change their usage.

To the extent that low income, large families will be affected by the transition to a usage price system, the Tribunal is concerned that an appropriate safety net be put in place during this transition for families not able to adjust their usage of water. Because this would be a *transition* mechanism designed to ensure the success of the move to a usage-pricing system, there is a case for the change to be carried out and funded by the water supply operator as a commercial activity. It must be stressed that this is a *transition* issue; the question of a more fundamental on-going CSO arrangement for large, low income families must be considered by the Government.

14.4 Impacts on tenants

The introduction of a usage-based system of water charging is likely to affect tenants who are reliant on the appliances and plumbing provided by their landlords. Landlords may have no direct financial incentive to invest in water-efficient appliances if they are passing usage charges on to their tenants. Anecdotal evidence is that tenants in Newcastle are being asked to pay the usage charge although their rent has not been reduced accordingly⁷⁶. Similar evidence exists in Melbourne.⁷⁷

In the Interim Report, the Tribunal recommends that where premises are individually metered, the tenant should be responsible for the usage component of the water bill. Respondents raise a number of issues regarding this recommendation.

Some groups are opposed to the concept that tenants should pay for water usage under any circumstances. Other respondents are in favour. Several submissions propose that new tenancy agreements should not be required.

⁷⁶ NCOS, Submission to the Tribunal, 1992.

⁷⁷ VCOS, Submission to Melbourne Water Resources Review Panel, 1991.

For example, the Property Owners' Association suggests that tenants paying usage charges could be achieved through regulation not negotiation, that is, through changes to the Residential Tenancies Act. The Department of Housing argues that it would be costly to negotiate new tenancy agreements and it would like to pass on the usage charges to all tenants.

Whilst it is aware of the basis of these arguments, the Tribunal is concerned that the levying of the usage charge may become a rent increase, as landlords may not reduce the rent when passing the usage charge liability to the tenant. For this reason, the Tribunal proposes the arrangement should come into effect only on the commencement of new lease agreements, when tenants could negotiate a lower rent to compensate for paying the water usage charges. Tenants covered by existing tenancy agreements should not be required to pay the water usage charges. On renewal or renegotiation of their lease agreements, tenants could then become liable for the payment of usage charges.

Other issues to consider are whether tenants should be billed separately and the administrative cost of this. Gosford City Council has indicated that the dispatch of separate bills for usage and access charges would increase administration costs. The SWB also raises this issue, citing data maintenance and meter readings as the main costs involved. By comparison, the Department of Housing suggests that users will only receive the correct signals if they are billed separately. In its Interim Report, the Tribunal does not make a recommendation as to whether the water usage and access bills should be separate. However, there is some merit in sending separate bills for usage. One approach may be to send an annual bill for the access charge to all landowners (payable quarterly) and a separate quarterly usage bill to the user. This would mean five mailouts as opposed to eight. While this is still one more mailout than under current billing arrangements, the quarterly bills would be greatly simplified as they would relate solely to usage. This may introduce scope for significant administrative savings in quarterly billing. In this way, the administrative burden could be reduced. Gosford Council raises the issue of the cost involved in reading meters at the end of each tenancy. The water authorities should look at how the electricity industry addresses this last issue.

An issue of concern in submissions from water authorities and tenants' groups is: what are the consequences of inability to pay? From the water authorities' viewpoint the issue is one of risk of bad debt and reduction in cash flow, from the tenants' point of view, the possibility of disconnection is a key issue. These issues exist for other utilities which bill tenants directly as users. In addition to any safety nets which may be put in place, the water industry should examine the approaches used by the other utilities to minimise the impact of peoples' inability to pay their accounts.

In its submission, the Caravan and Relocatable Park Residents' Association raises the issue of park owners charging per kilolitre rates for measured

consumption above the marginal rate. The Strata Title and Tenancy Commissioner also addresses this issue. The Commissioner proposes to recommend to the Residential Tenancies Consultative Committee that landlords cannot seek reimbursement from a tenant that is greater than the amount which would be charged by the supply authority. This follows a provision in the Victorian legislation and is consistent with existing regulations applicable for electricity. The Tribunal supports this proposal.

Recommendation 14.1: The Tribunal recommends that for all new tenancy agreements and where premises are individually metered:

- i the landlord be responsible for paying the access charge*
- ii the tenant be responsible for the usage component of the water bill*

Where landlords ask tenants to pay usage charges, the charge should not exceed that which would apply if charged directly by the water authority.

Properties which are not individually metered present a different situation. These dwellings are not currently covered by the Residential Tenancies Act and Regulations. Recommendation 14.2 of the Interim Report proposes that where properties are not individually metered the landlord continue to pay the usage and access charges.

The landlord's paying the usage charge clearly contravenes the user pays principle and does not provide the correct signal to the user. The Tribunal is of the view that, ideally, tenants should pay for the water that they use. The absence of metering, however, does not allow for this. Alternative approaches involve averaging consumption over all dwellings. The Long Term Unemployed Private Sector Tenants state in their submission that charges should not be calculated on a per unit basis. The Property Owners' Association disagrees with this view, preferring that the amount be averaged according to value of rent. The Tribunal fails to see the equity of this approach and its relationship to user-pays. Such an arrangement does not encourage efficient use by occupants, nor can it be considered to be equitable. For example, one occupant may go to great pains to conserve water in the expectation of a reduced bill, only to be penalised by the non-conservation activities of the other occupants. The Tribunal is not prepared to recommend that usage charges be averaged across tenants. Ultimately, the preferred approach is to have all premises metered individually. Some existing properties may be fitted with separate meters easily. Extension to other properties may be feasible in time as remote metering becomes available. In the meantime, in the absence of separate metering, the Tribunal believes the only option is for the landlord to pay the usage charge.

The Strata Title and Tenancy Commissioner raises a related issue in his response. This relates to a proposal that the Department of Housing impose a service charge on occupants of non-individually metered premises. A similar arrangement now exists in Victoria. The Tenants groups oppose this

proposal, claiming it is inequitable. The Tribunal is not in favour of such a charge for the reasons stated above.

Recommendation 14.2: The Tribunal recommends that, where properties are not individually metered, the landlord should be responsible for paying the usage charges as well as the access charges.

A similar situation exists for strata title properties which do not have separate meters. In these circumstances, the Water Board sends the usage bill to the Body Corporate, which then pays the bill from its Administrative Fund. Proprietors contribute to the fund according to unit entitlement. The unit entitlement is based on the comparative value of each lot in the strata scheme at the time the plan was registered. This approach does not attribute water usage to the user but treats the costs in the same way as all other costs within the strata scheme. The unit entitlement is likely to be more closely related to the variable components of water usage, for example, the size of land and gardens. Further, a Body Corporate could have a strong influence on the water conservation behaviour of its members, thereby contributing to reduced usage of water.

These issues could be resolved readily if the strata title were to have all dwellings metered separately. The Property Owners' Association suggests that strata title registration should be denied for any new building without individual metering. The Tribunal supports the concept of individual metering wherever practicable.

Recommendation 14.3: The Tribunal recommends that in strata title properties which are not individually metered the Body Corporate should continue to levy its members according to unit entitlement.

The Tenants' Union raises the issue of the need for landlords to provide and maintain the water supply and disposal system in good order and to install water-efficient appliances. The Tenants' Union suggests that the Tribunal might consider a recommendation that repair or replacement of water-inefficient appliances be included in the list of urgent repairs under Section 28 (2) of the Residential Tenancies Act 1987. On the issue of water-efficient appliances, the Department of Housing has indicated that it would be prepared to be involved in demand-management strategies.

"...[tenants paying usage charges] should bring forward substantial growth among tenants in awareness of and concern for conserving water. The Department would be prepared to complement this by directing some of the savings it is presently incurring on behalf of tenants to a retrofitting program of water saving devices."⁷⁸

The Tribunal is of the view that tenants should not be penalised as a direct result of inaction on the part of landlords in maintaining the water supply

⁷⁸ Department of Housing, Supplementary Submission to Tribunal, December 1992, p4.

system. In these circumstances there needs to be consistency with situations which apply in the case of electricity and gas appliances.

Some comments on the Interim Report suggest that Recommendation 14.4 is superfluous. The Tribunal is of the view that the current legislation does not cover this issue.

Recommendation 14.4: The Tribunal recommends that Section 28 of the Residential Tenancies Act be amended to include as urgent repairs, the repair or, if necessary, replacement of water appliances which are leaking, where the tenants are responsible for payment of usage charges.

The Tribunal is aware of recent amendments to the legislation in Victoria. The *Residential Tenancies (Water and Utilities Charges) Act 1993* was passed in the Victorian Parliament in May. This Act:

- ♦ clarifies the liability of landlords and tenants
- ♦ ensures that similar provisions apply with respect to caravan parks
- ♦ makes tenants of separately metered properties responsible for usage charges
- ♦ maintains responsibility of landlords in non-separately metered premises to pay for usage
- ♦ provides for a direct relationship between the water authority and the occupant
- ♦ allows the Director of Housing to charge tenants in non-separately metered premises a service charge
- ♦ expands the definition of urgent repairs to include water appliances, fittings and fixtures
- ♦ makes provision for the replacement of irreparable appliances with an efficient appliance

With the exceptions noted earlier, the Tribunal commends these changes to the Government as a model for specifying these matters in NSW.

The recommendations made in this section should be forwarded to the Strata Title and Tenancy Commissioner for consideration.

14.5 Impacts on economic development

The SWB in its submission indicates that water and related services represent an input to a large number of industries. The Industry Commission's analysis⁷⁹ shows that in 1989/90 metropolitan water and sewerage each accounted for around 30% of total industry costs. The Industry Commission

⁷⁹ Industry Commission, *Water Resources and Waste Water Disposal*, Report No 26, Appendix D, 1992.

simulates productivity improvements through improved asset replacement and improved staffing practices. The improvements associated with lower asset replacement costs are represented in the model as doing the same with less. Savings of 10% on operating, maintenance and administration costs industry-wide, are modelled as a reduction in the water and sewerage industry's labour requirement. These productivity improvements in the Australian water industry can be expected to yield an increase in Gross Domestic Product of less 0.5% and a similar increase in exports. The CPI would decrease by less than 0.25%.

The Department of State Development argues the impact on economic development in its submission to the Tribunal:

"An analysis was carried out by ACIL Australia for State Development's Regulatory and Economic Reform Unit, which modelled the expected impact on NSW of an overall decrease in water charges of 15%, as foreshadowed in the Industry Commission's 1989/1990 Annual Report. This was found to produce net benefits to NSW of \$388 million. While the outcome from the removal of cross-subsidies and the adoption of other recommendations will be more complex, producing both winners and losers, it may nevertheless be expected that increased economic efficiency in the charging for services will result in overall net benefits to the NSW economy."

However, these benefits are unlikely to be achieved immediately as shown by a report of the National Institute of Economic and Industry Research (NIEIR). Commissioned by the Chamber of Manufactures of NSW, this report estimates the subsidy to the residential sector for water, sewerage and drainage services to be some \$340 million per year:

"The elimination of cross-subsidies will involve increases in some market sectors and decreases in others. The response of customers will depend on the extent that these are usage dependent."⁸⁰

The study estimates that the average percentage change (without behavioural change) would be as shown in Table 14.1.

⁸⁰ National Institute of Economic and Industry Research. *Impact of Public Authority Cross-Subsidies Derived from Manufacturing Industry in New South Wales*, 1992.

Table 14.1 Changes in charges to eliminate SWB cross-subsidies

Market sector	Average price change (%)
Single dwellings	52
Flats and units	63
Small primary	76
Other residential	37
Industrial	-54
Commercial	-70
Primary	19
State Government, community services	43
Other non-residential	-12

(Source: NIEIR, Table 3.6)

The NIEIR analysis estimates a dramatic increase in charges for the residential sector. These increases are well in excess of increases currently being considered by the Water Board. The NIEIR model suggests that (with behavioural changes) usage prices of the order of \$1.08 to \$1.34 per kilolitre would be required for the residential sector to reduce the existing subsidy to \$33 million. Corresponding prices for the non-residential sector would be in the range of 65 cents to 90 cents.

In its submission to the Tribunal, the SWB provided estimates indicating that flats and units were near to cost-recovery.

The broad effects on the NSW economy of reducing the water industry cross-subsidies are shown in Table 14.2.

Table 14.2 Direct effect of elimination of SWB cross-subsidies on NSW economy

YEAR	NSW GSP	NSW Total employment	NSW manufacturing gross output
	(1992 \$m)		(1992 \$m)
1993	-10	-70	0
1994	-20	-200	0
1995	-20	-360	0
1996	-20	-320	0
2000	70	750	80
2005	220	3800	200
2010	380	7000	340
2015	550	10000	500

(Source: NIEIR, Table 3.10)

The initial decline in these indicators results from the initial loss in real household income of the residential sector as the cross-subsidy is wound down, and from the delay by the industrial sector in responding to the changes in prices and income. NIEIR suggests that the negative effects from the reduced real incomes of households are likely to outweigh the positive industry effects in the short run. Thus, the overall impact on the State's economic activity is likely to be adverse. In the longer run these adverse effects will be replaced by positive effects.

14.6 Summary of recommendations

The Tribunal recommends that for all new tenancy agreements and where premises are individually metered:

- i the landlord be responsible for paying the access charge*
- ii the tenant be responsible for the usage component of the water bill*

Where landlords ask tenants to pay usage charges, the charge should not exceed that which would apply if directly charged by the water authority.

The Tribunal recommends that where properties are not individually metered the landlord should be responsible for paying the usage charges as well as the access charges.

The Tribunal recommends that in strata title properties which are not individually metered the Body Corporate should continue to levy its members according to unit entitlement.

The Tribunal recommends that Section 28 of the Residential Tenancies Act be amended to include as urgent repairs, the repair or, if necessary, replacement of water appliances which are leaking, where the tenants are responsible for the payment of usage charges.

15 COMMUNITY SERVICE OBLIGATIONS AND SAFETY NETS

15.1 Introduction

Non-commercial objectives may influence the pricing practices and operations of water suppliers and may affect their ability to meet financial targets. These non-commercial objectives are sometimes known as Community Service Obligations (CSOs). Safety-net arrangements may also require consideration of alternative approaches to CSOs.

CSOs are defined as "those non-commercial activities which are undertaken by an authority, and which meet a social objective identified by the Government". Pensioner rebates are one example of CSOs.

This chapter:

- ♦ describes the current approach to CSOs
- ♦ describes a range of non-CSO concessions
- ♦ discusses the principles for CSOs
- ♦ outlines the implication of funding CSOs on the State Budget
- ♦ discusses general approaches to safety nets and transitional arrangements
- ♦ canvasses a number of issues relating to rebates to pensioners

15.2 Current approach to CSOs

CSOs are clearly a matter for government. However, the Tribunal believes that it has a role to play in identifying those sections of the community which might be adversely affected as a result of changes to pricing structure.

The criteria for identifying CSOs are:

- ♦ a government requirement for an activity to be undertaken
- ♦ a recognisable community or social benefit from undertaking the activity
- ♦ an activity which would not be provided by the water suppliers on a purely commercial basis

The above definition and criteria are consistent with those given by the Industry Commission. Yet organisations have had difficulty in identifying their CSOs. This may be because some of the activities which organisations see as being non-commercial fail to meet all of the criteria for being a CSO. For example, the SWB in its submission identifies total bill limitation (price capping) as a CSO. This is clearly not a CSO, yet it seems to meet some of the criteria.

The process of identifying and funding CSOs is currently being formalised. Earlier this year the Treasury released a draft policy for GTEs: *Community Service Obligations Policy for NSW Government Trading Enterprises*. This draft policy document outlines the process by which CSOs are to be identified, costed and implemented.

15.3 Current CSOs

The Government finances from the Budget a number of CSOs which are provided by the water suppliers: pensioner rebates, exempt properties, trade waste and a group of subsidies to the HWC. Table 15.1 shows the level of financing of these CSOs for 1991/92.

Table 15.1 State budget financing of community service obligations 1991/92 (\$ 000)

CSO	SWB	HWC	Total
Pensioner rebates	36,120	1,350	37,470
Exempt properties	15,231	269	15,500
Subsidies to HWC ¹	-	302	302

(Source: NSW Budget Papers No 2 and No 3, 1992/93; SWB and HWC.)

1 These relate to a range of CSOs.

15.3.1 Pensioner rebates

Most funds paid for CSOs are allocated to pensioner rebates. All four water suppliers give rebates to pensioners; the SWB and HWC are reimbursed for these rebates in full, the two councils are reimbursed for 50% of the rebate.

The conditions for claiming a rebate are that the person lives at the dwelling, is the owner of the dwelling and holds a Commonwealth Pensioner Health Benefits Card.

For the SWB, the amount of the rebate depends on the services provided and is applied against the Service Availability Charge. The estimated cost of the scheme for the SWB in 1992/93 was \$34.6 million, which was disbursed to 170,000 households. Following the Commonwealth Government's decision to remove the income and assets test previously required for pensioners to receive the Pensioner Health Benefit Card, the SWB has estimated that this would increase the number of households eligible for the pensioner rebate to 207,000.⁸¹ This increase in eligibility, combined with pensioner rebate considerations in the current 1993/94 SWB pricing proposal, could increase the total cost of the scheme to \$58 million in 1993/94.

Pensioner rebates applicable for the SWB for 1992/93 are shown in Table 15.2.

⁸¹ SWB, Submission to Annual Water Determination 1993/94, p.16.

Table 15.2 Pensioner rebates and service availability charges SWB 1992/93

Service	Rebate	Service Availability Charge	Ratio Rebate/Service Availability Charge
Water only	\$91.36	\$97.00	0.942
Water and sewerage services	\$205.64	\$349.80	0.588
Water, sewerage and drainage services	\$210.04	\$362.96	0.579

SWB customers who are eligible for pensioner rebates are also exempt from payment of the Special Environmental Levy (SEL). This could be seen as an unfunded CSO.

The HWC applies the pensioner rebate to the total bill for water and sewerage services. For each service the rebate is half of the bill to a maximum of \$87.50. The pensioner rebate is available only to owner-occupants. The amount rebated to pensioners is refunded by the State Government as a CSO. As with the SWB, eligible pensioners do not pay the environmental levy. The Pensioner Rebate CSO is fully funded through the Department of Planning.

Both Gosford City Council and Wyong Shire Council apply the pensioner rebate at the rate of half of the bill to a maximum of \$87.50 for each service, a total of \$175 per annum. This figure is prescribed under the Local Government Act. Councils receive a reimbursement from the State Government equivalent to half of the pensioner rebate.

The rebates for Sydney are higher than those of any of the other three metropolitan water suppliers. The Tribunal is not aware of any specific reasons for these differences in rebates.

15.3.2 Exempt properties

Water suppliers have provided water services to community groups and government departments at a reduced rate. Land owned and used by organisations providing community services and amenities on a non-profit basis is granted exemption from the payment of the Service Availability Charges. A few properties are eligible for free supply of water.

Since 1990/91, State Government departments are no longer exempt and are required to pay the Service Availability Charges. Departments incur water usage charges and may be subject to sewerage usage charges and trade-waste charges. Since January 1993, universities have been subject to Service Availability Charges on the same basis as government departments. The universities are also liable for usage charges.

The State Government paid \$14.5 million to the HWC and the SWB for exempt properties in 1991/92. This payment was to cover the cost of providing services to exempt properties.

15.3.3 HWC subsidies

The Government also paid \$302,000 to the HWC for a range of CSOs in 1991/92. These included chemical collections, fire hydrants and total catchment management.

As part of the corporatisation process, the Treasury agreed to provide funding for all these CSOs and exempt properties on a phased basis with two-thirds of the cost to be funded by the Treasury in 1992/93, one-third of costs for 1993/94 and nil thereafter. The remaining costs for each CSO would be met by the appropriate government department. The HWC has attempted to negotiate alternative arrangements with the NSW Fire Service through direct funding by the service or by the Fire Service's taking over the maintenance of hydrants.

15.4 Non-CSO concessions

The SWB provides a number of concessions to customers which are not treated as CSOs. That means they are funded by customers through cross-subsidies not by the Government.

The Payments Assistance Scheme (previously known as the Water Accounts Payments Assistance Scheme) is designed to provide assistance to families experiencing financial hardship in paying the Board's charges. The SWB supplies welfare agencies with vouchers which are issued to those who are deemed to require assistance. In 1991/92 there were 5,764 claims averaging \$106.77. The cost of the scheme in 1992/93 was \$0.72 million. The estimated cost of the scheme in 1993/94, under the pricing reform package, is \$2 million.

The Accounts Accrual Scheme commenced in January 1993. The scheme provides for the deferral of the SWB service availability charges by applying them against the future asset value of the property. Eligibility for the scheme is restricted to those over 60 years of age. It is estimated that 500 people will be assisted under the scheme in the first six months of operation.

The HWC provides discretionary assistance through its Hardship Fund. Under this scheme charges are waived or deferred for eligible customers. This scheme was introduced as a transitional scheme when the user-pays system was introduced in 1982.

The HWC discussed this issue at the Public Hearings at Newcastle:

"The target in those days was to pick up anyone who had an unintended consequence of change, for example, people with large families. It was a mechanism primarily used to aid the process of change, and most of its use was in the early days ... Once it was up and running it became a question of addressing people in need rather than people caught up in change. That is far more difficult because then you basically become an arm of social security."⁸²

15.5 Principles for CSOs

Public utilities have been created in Australia to carry out the broad mission of providing public goods. The New South Wales Council of Social Service (NCOSS) argues that governments are responsible for ensuring that everyone has access to those services which are considered essential for living. There is a widely held expectation that all people should have access to an adequate supply of water. These expectations are matched by a belief by some that the water pricing system should be used as a mechanism for income redistribution.

The question of what constitutes a necessary level of service arises. NCOSS does not define this level of service. The Social Policy Research Centre, on the other hand, refers to the notion of a "minimum but adequate" (MbA) level of service provision.

NCOSS argues that a progressive charging regime is the most appropriate means of accomplishing this:

"A progressive pricing system is essential for equity, and cannot satisfactorily be compensated for by reliance on add-on social programs, or income transfers which are the responsibility of another level of government."⁸³

A progressive system implies that those who have the capacity, pay for their services. The key question is: how do you introduce progressivity? The property tax is intended to do this. It does not necessarily follow, however, that if you have a high value block of land that you are most able to pay nor that if you have a low value block of land you are less able to afford to pay for the water needed. Chapter 3 provides a discussion of general pricing principles.

The present pricing structure uses the property tax element and cross-subsidies to achieve income redistribution. Yet this structure could be considered to be regressive.

NCOSS has argued that there is a relationship between income and property value.

⁸² Mr P. Broad, Transcript of Newcastle Hearings, 1992.

⁸³ NCOSS Submission, on Inquiry into Water and Related Services 1992, p.2.

"The above tables and graph show, albeit weakly, some correlation between income and land value. ... Some of the weakness in correlation could also be due to the nature of the questionnaire and/or the quality of official information utilised."⁸⁴

Evidence available to the Tribunal suggests that there may be some relationship between level of income and value of home at the low and high ends of the income scales. For middle income groups this is not true.

Cross-subsidies are often mentioned as transferring funds from the business sector to the residential sector. The SWB estimates the amount of the subsidy to be in the order of \$250-300 million a year. This cross-subsidy exists because of the high property tax component in the non-residential billing structure. There are also cross-subsidies within the residential sector from low water users to high water users and from users in low service cost areas to consumers in high water costs areas.

A report prepared by the National Institute of Economic and Industry Research (NIEIR) for the NSW Chamber of Manufactures estimates that the cross-subsidy is in the order of \$300m⁸⁵, funded from revenue from the business sector, particularly small business.

The NSW Treasury states that:

"Cross subsidies have been justified as a means of pursuing social objectives- for example access to essential services, such as electricity and water. (They)...are a blunt and ineffective means of addressing social inequities which may restrict access to such services by disadvantaged groups."⁸⁶

In fact, the cross-subsidy from business to residential consumers provides cheaper water to all residential customers, not merely to those who are disadvantaged.

15.6 Funding implications of CSOs

The requirement to provide services which are termed CSOs can have an effect on the price of other services provided by the organisation. This depends on the mechanism used to pay for the service. The two broad options are cross-subsidies and explicit payments by government.

Cross-subsidies mean that some consumers pay more to fund those who are paying less. Explicit payments have the effect of spreading the cost over all taxpayers.

⁸⁴ NCOSS, Submission on Interim Report, pp.7-8.

⁸⁵ NIEIR, *Impact of Public Authority Cross-Subsidies Derived from Manufacturing Industry in New South Wales*, 1993.

⁸⁶ NSW Treasury, Draft CSO Policy Paper, 1993, p.31.

The NSW Treasury uses the following illustration of the impact of CSOs on the State Budget.⁸⁷ Table 15.3 shows the impact of a CSO costing \$100 million.

A CSO which costs \$100m and was funded internally by the water supplier would mean an additional cost to the State Budget of \$30.5m if it were to move to direct funding.

The Treasury regards CSOs as essentially an issue of government policy and, as such, a matter for governments. Basically, payment of a CSO depends on an agreement between the organisation, the relevant Minister and the Treasurer. *The Tribunal supports this view. The Tribunal also considers that the preferred method of funding CSOs is through an explicit and transparent government payment.*

Table 15.3 CSO funding impacts on budget

	CSO with Direct Funding	Budget	CSO with Internal Funding
	\$m		\$m
Commercial Revenue	1000		1000
CSO Subsidy	100		
Total Revenue	1100		1000
Commercial Operating Costs	700		700
CSO Costs	100		100
	800		800
Profit	300		200
Distribution to Government ¹	208.5		139
Less CSO Subsidy	100		0
Net Gain to Budget	108.5		139

1 Assumes a distribution ratio of 69.5% (39% tax equivalent and 50% after-tax profit).

(Source: NSW Treasury Draft Paper on CSOs)

15.7 Safety nets

The move in water charging to greater reliance on usage pricing may place financial stress on some consumers. This could be alleviated by staging the introduction of the new pricing system and/or through the use of safety nets. Actions to alleviate the burden on customers could be in the form of transitional safety nets or continuing arrangements.

The Treasury has said:

⁸⁷ NSW Treasury, Draft CSO Policy Paper, 1993, p.30.

"Existing welfare arrangements which currently provide rebates to pensioners would be likely to continue as prices are reformed. Certain other groups would be adversely affected, even after they adjust behaviour to reduce the impact of price changes, but may well be in a position to afford the impact."⁸⁸

Although the Treasury considers that many water users may be in a position to afford the increases, it does concede that:

"There will undoubtedly be some genuine hardship cases... The extent of such impact needs to be quantified and discussed with Treasury with a view to assessing the need for ameliorative measures (eg arranging community service obligation payments)."⁸⁹

The Treasury points out that safety net requirements are a matter for political decision; where the government believes that some groups should be assisted, it should be through transparent direct subsidies according to the guidelines set out in the Treasury's CSO Discussion Paper. In general, the Tribunal supports this view. Importantly, the Tribunal does not believe that appropriate price reform should be stalled by over-stating the nature of any adjustment burden. Rather, where hardship exists, safety nets should be provided to those in need. This does not mean a blanket safety net arrangement, but rather one which meets real needs.

King and Bradbury⁹⁰ set out the arguments for assistance and discuss the merits of alternative mechanisms. Three broad types of assistance are discussed: ongoing assistance to the disadvantaged, ongoing assistance to others, and transitional assistance.

They also set out the general principles for the design of safety nets. These may be summarised as: effectiveness, efficiency, equity, long-term maintenance, political acceptability, institutional arrangements and administrative efficiency.

The following sections outline the case for various ways for providing safety nets.

15.7.1 Cashing out

Direct income support (or cashing out) appeals to many. It gives consumers the freedom to spend the money as they see the need; it is relatively simple to administer, there is no need to apply and therefore recipients can be targeted accurately.

However, there are disadvantages in such an approach. It removes the link to the service and access to the service is no longer guaranteed. Because the link

⁸⁸ NSW Treasury Submission, 1992, p.4.

⁸⁹ NSW Treasury *ibid.* 1992, pp.4-5.

⁹⁰ King & Bradbury, *Changes in the pricing of water and related services in the Sydney Water Board region: Distributional Impacts and Compensation Policies* 1993, pp.30-36.

no longer exists, and the reasons for cashing out are forgotten, later claims can be made for support. Further, although they seem to be beneficial, regular payments can cause budgetary problems; that is, recipients of cashed-out support have difficulty in saving and the money is spent on other items when it is received, rather than being put aside for payment of the account for which it was originally intended. In addition, non-recipients may see the payments as an increase in income which they cannot receive. The administrative simplicity of this system depends on who is paying the bill. The Commonwealth-State arrangements required for this system are unresolved.

15.7.2 Rebates

A rebate scheme appears to be a generally acceptable mechanism for providing assistance. Arguments about the incentive effects of a rebate on a volumetric charge would seem to be a serious concern only if an open-ended rebate was under consideration. This is not the case here, where it is suggested that the rebate be limited to a reasonable level of consumption. Consumption above that level would be charged at the going rate.

15.7.3 Vouchers

Vouchers, like cashing out, are usually suggested as an appropriate mechanism where a combination of assistance in a number of areas is under consideration. Then, a voucher system can be seen to provide greater, but still constrained, consumer choice by allowing the holders of vouchers to allocate them as they wish between a number of bills.

The voucher option is essentially an intermediate form of cashing out and has the same advantages and disadvantages. There does not appear to be any case for using a voucher scheme for a single element of assistance.

15.7.4 Hardship schemes

If no other form of assistance was provided, the case for a hardship scheme would be very strong. The incorporation of any element of discretion means high administrative costs which possibly, in turn, mean fewer funds available for distribution. The element of discretion also means that it is likely that assistance cannot be described in simple terms and in a manner which gives certainty of entitlement.

Fundamentally, a discretionary scheme does not fit with any attempt to systematically define the need for continuing assistance. There is, however, an argument for a discretionary hardship scheme in the case of transitional assistance.

When the Hunter Water Board shifted to user-pays pricing in 1982, a Hardship Fund was established:

"[The Fund was to run] for a transitional period of 2-3 years, to permit the offering of relief to people in necessitous circumstances, such as large low income households in low values properties ... and low or fixed income earners in high valued properties."⁹¹

The Fund was sourced from the general revenue of the Board and was established by legislation as a temporary measure with continuation beyond the first year subject to the Minister's approval.

Although the Hardship Fund was established as a temporary measure, and most use of it was made in the early years from 1982 to 1984, it has continued to operate under the HWC.

15.8 Extension of pensioner rebates

This section canvasses a number of issues relating to the existing pensioner rebate scheme and options for changing it.

15.8.1 Owner-occupiers

Uniformity

The SWB's pensioner rebate appears to be quite generous, particularly for those customers who have a water service only. The SWB's 94% coverage of the water Service Availability Charge compares to 50% maximum coverage for any of the other three water suppliers. The Government decides the nature and details of pensioner rebates, but the Tribunal is not aware of any reasons why the rebates in Sydney are so much larger than for the other water suppliers.

For equity to be achieved, pensioners should receive a comparable rebate irrespective of their location and nature of tenure⁹². Under a user-pays system of water pricing, this rebate should be applicable to the usage component of the bill. Melbourne has a system whereby the rebate is applied separately to the availability charge and the usage charge. Any amount unused against the access charge can be applied to the usage charge. It should be noted that for Melbourne and Newcastle the average bill is greater than for Sydney.

Recommendation 15.1: It is recommended that the pensioner rebate be uniform across the major metropolitan water suppliers. Any changes should be phased in over a reasonable period of time.

⁹¹ Read, Formby and Day, *The User-Pays Proposal: Its Development and Changes at the Hunter District Water Board, NSW, from 1982 to 1986, 1988*, pp.7-9.

⁹² Equity issues relating to nature of tenure are addressed in Section 15.8.2.

Revised eligibility criteria

An owner-occupier's holding of a Pensioner Health Benefit Card has been the primary method for determining eligibility for a pensioner rebate. Since 1 April 1993 this card has been issued free of income test to women aged 60 years and over and men 65 years and over. The SWB estimates that this change will result in an increase in the number of pensioners eligible for the rebate.

The Tribunal is concerned that additional funding of general pensioner rebates may be at the expense of CSO funding of those in greater need, whether pensioners or not. The issue is rightly one for Government, but the Tribunal believes that some thought needs to be given to the social policy objectives that are being pursued in the case of automatic pensioner rebates.

A mechanism that is better targeted to those who are most in need of support is one option, should a more targeted approach be seen as appropriate. The Cabinet Office of NSW has previously looked at issuing a State Card, with more restrictive eligibility criteria. This card may be a way of addressing this issue.

One respondent has commented that Recommendation 15.2 contradicts Federal Government policy. Others have commented that this is the role of government.

Recommendation 15.2: Although clearly a decision for the Government, the Tribunal recommends that the Pensioner Rebate Scheme be examined by the Government and consideration be given to better targeting of assistance to those in need, whether pensioner or not, rather than through the present automatic pensioner rebate scheme.

15.8.2 Tenants

The issue of tenants' paying some or all of the water bill is discussed in Chapter 14. Whether tenants pay any of the water bill could impact on the future level of the Pensioner Rebate CSO paid from the Budget. Given that tenants may be paying some of the water bill, should pensioner tenants be eligible for the rebate? From an equity viewpoint, owners are treated differently from tenants in that the former are eligible for a rebate. Ideally, assistance should be tenure-neutral. That is, tenants should be eligible for the same assistance as owner-occupiers. If tenants pay a usage charge, they should be eligible for the same concession as owner-occupiers who are in a similar economic situation.

The Combined Pensioners' and Superannuants' Association states:

"Pensioner renters must be made eligible for a pensioner rebate on their water usage. Whilst possibly a complicated administrative process, there remains no

justifiable reason why pensioner renters should not be entitled to the same subsidy available to pensioner owners."⁹³

The Association highlights the problem of extending rebates to tenants: How are such rebates to be administered? Where properties are metered, this problem would be resolved if the water supplier billed the user/resident directly, rather than the property owner. This is normal commercial practice in the case of electricity and telephone accounts, and there is no reason why the water supplier should not deal directly with the user of the service. The administrative mechanisms for paying a rebate to tenants could represent the major stumbling block to extending pensioner rebate eligibility to tenants. However, in the absence of a more targeted CSO policy, the extension of the rebate to tenant pensioners would increase the scope of the rebate and lead to a need for a greater contribution from consolidated revenue.

Alternatively, it may be appropriate to encourage access to the Account Assistance Scheme. However, the Combined Pensioners' and Superannuants' Association feels that there is considerable embarrassment attached to this scheme:

"We have reservations however about hardship funds administered through welfare agencies, because of the stigma attached to having to approach such agencies for assistance."⁹⁴

Tenants' groups have expressed concern for the impact on tenants, both public and private. The proposed transitional and ongoing arrangements should assist those who are adversely affected.

Recommendation 15.3: The Tribunal recommends that the issue of any continuing assistance to pensioner tenants must be addressed by the Government as part of the program of CSOs for the water industry, and should be reviewed along with any overall review of the current program.

15.9 Assistance to families

Low income households with large families may be adversely affected by the introduction of a pricing system with high usage charges. Large families whose water usage is necessarily high may be far more seriously affected than pensioner home-owners whose water usage is low. If reforms are to proceed smoothly, there needs to be some consideration given to assisting low income households with large families on a transitional basis. *The Tribunal's concern arises from the price reform process and the need for adjustment assistance, as a transitional measure.*

The need for assistance must be measured against some benchmark of affordability. In its submission, NCOSS proposes that the pensioner rebate be

⁹³ Combined Pensioners' and Superannuants' Association, Submission to Tribunal, p.3.

⁹⁴ Combined Pensioners' and Superannuants' Association, *ibid.* p.3.

extended to recipients of the Family Allowance Supplement (now called the Additional Family Payment). The Combined Pensioners' and Superannuants' Association also proposes that the rebate be extended to other groups in the community. In discussing compensation through broad-based concession systems, VCOSS states:

"People most disadvantaged ... will be large families living in low value properties. Whilst these people are very likely to be living on low incomes, many will not be in the concessions system. They will not be holders of the Commonwealth Health care card ..."95

The Tribunal accepts the Additional Family Payment as an appropriate benchmark. However, the Tribunal believes that adjustment assistance should be on a transitional basis and should relate purely to the usage component of the bill.

Issues relating to the SWB's proposed changes to the pricing structure for 1993/94 are dealt with in the Annual Determination for the Water Board. The Water Board has proposed a range of payment options and transitional arrangements.

The Department of Housing is concerned about the impact on low income families. It supports both ongoing CSOs and transitional arrangements to protect large families. NCOSS wants transitional assistance to be provided in the form of a direct payment. These issues have been dealt with through the transitional arrangements discussed above.

The SWB has commented that it believes that transitional arrangements should be funded by the Government as a CSO. Whether or not it qualifies as a CSO is a decision for Government to make.

Recommendation 15.4: The Tribunal recommends that the water supplier is best placed to cover the costs of any transitional arrangements to protect low income families who are adversely affected by the price reform. This may be necessary in order for the SWB's changes to be acceptable to its customers. A more fundamental extension of, or change to, CSO rebates to any group, such as Additional Family Payment recipients, is a decision for the Government, not the Tribunal.

Such a scheme could have a significant cost. There are 82,179 families receiving the Additional Family Payment in NSW96. Careful targeting is required to ensure any adjustment assistance achieves its intended objectives. It should allow for the number of dependants.

The Treasury questions the imperative of financial assistance as opposed to a dividend return to the owner. Treasury suggests that capping increases

95 VCOSS, Submission to the MWRR Panel, 1991, p.15.

96 Department of Social Security. Figure as at 11 Dec, 1992.

would achieve the same goal. A cap on increases does not necessarily assist those who should be targeted, this is, large families on low incomes.

The Tribunal notes Treasury's intention to review existing concessions:

"During 1993-94, Treasury will establish a Working Party to review existing concessions and to advise on how more appropriate and more equitable targeting can be achieved."⁹⁷

15.10 Summary of recommendations

It is recommended that the pensioner rebate be uniform across the major metropolitan water suppliers. Any changes should be phased in over a reasonable period of time.

Although clearly a decision for the Government, the Tribunal is of the opinion that the Pensioner Rebate Scheme needs to be examined by the Government and consideration given to better targeting of assistance to those in need, whether pensioner or not, rather than continuing the present automatic pensioner rebate scheme.

The Tribunal believes that the issue of any continuing assistance to pensioner tenants is one for the Government to address as part of the program of CSOs for the water industry, and should be reviewed along with any overall review of the current program.

The Tribunal believes that the water supplier is best placed to cover the costs of any transitional arrangements to protect low income families who are adversely affected by the changes, as a commercial activity. A more fundamental extension of, or change to, CSO rebates to any group, such as Additional Family Payment recipients, is a decision for Government, not the Tribunal.

⁹⁷ NSW Government. *Budget Information 1993-94, Budget Paper No. 2, Chapter 4.* p.154.

16 FORMS OF PRICE REGULATION

16.1 Introduction

The way prices are regulated has an important effect on the performance of a utility. Factors such as the protection of consumers, encouragement of efficiency and incorporation of environmental effects point to the need for regulation of monopoly utilities.

Above all, regulation provides a mechanism for trading-off the competing claims on the utilities in the absence of competitive markets. Customers will want charges minimised for a given standard of service. Management and employees may wish to ensure revenue is adequate to minimise financial and organisational instability and to fund future growth. As owner, the Government may wish to maximise its dividends, or it may wish to use a utility to deliver any one of a number of policy objectives ranging from equity or industry development to the provision of particular services.

As is now well recognised, regulation is neither perfect nor costless. It can become an administrative burden and adversely affect incentives for the regulated utility. The goal is to establish a form of regulation that provides a balance between the objectives of regulation and the possible adverse effects of putting that regulation into practice.

This chapter:

- outlines the criteria for assessment of alternative forms of price regulation
- examines the relative merits of the alternative forms of price regulation against these criteria
- outlines the practical aspects of the application of the preferred form of regulation

16.2 Criteria for the form of price regulation

Prices of monopoly utilities are commonly regulated to protect consumers from the abuse of monopoly power through excessive prices. This is an important role of regulation. Theory suggests that in the absence of regulation, a utility may charge higher prices to earn monopoly profits. In practice, the market power of government-owned utilities has often been used to provide cross-subsidies to some groups of customers by over-charging others.

Market power may also result in higher costs rather than profits. These higher costs may occur in a number of ways: expansion of the range of activities undertaken, increases in service levels, "gold-plating", higher than necessary employment, increases in salaries, gradings and non-salary benefits. Whether an organisation is publicly or privately owned is of

secondary importance. The important issue is the extent of competitive pressure the organisation faces.

In the absence of competition, the Tribunal believes that well-designed regulation can stimulate better performance by increasing the pressure on the utilities for higher productivity. However, the Tribunal recognises that a common criticism is that price regulation can encourage inefficiencies by clouding responsibilities and creating adverse incentives. The effect on incentives is an important aspect of the assessment of the various forms of regulation.

The Tribunal considers that the form of price control should meet a number of criteria. It should:

- ♦ be effective in controlling monopoly power
- ♦ preserve, as far as possible, managerial autonomy and incentives for greater efficiency with 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

These objectives provide a reference point for the assessment of alternative price control systems. Of course, any system adopted will involve a compromise between these desirable, but potentially competing, objectives.

16.3 Alternative price control systems

Choice in the form of price control lies principally between a US style rate of return control, a UK style $CPI \pm X$ control, or regulation of prices to maximise the use of existing capacity.

16.3.1 Rate of return controls

Under rate of return controls, the regulated utility files a proposed tariff when it wishes to revise its prices. The regulator checks the utility's submissions concerning operating costs, capital employed and cost of capital. This data, plus assumptions about demand and the required rate of return, are used to calculate the total revenue requirement and to determine price levels. The structure of prices has to avoid unfairness or unreasonable discrimination, as interpreted by the regulator. Thus, prices are approved on a service-by-service basis.

16.3.2 CPI±X controls

CPI±X controls allow a utility to change its prices, provided some average measure of price does not increase faster than CPI±X for a specified period. Determining a value for X requires judgements on future financing requirements, the rate of return and the scope for productivity gains. Hence, the information requirements, though more forward-looking than under rate of return controls, cover similar items. In particular, both systems consider, among other things, the rate of return earned by the utility.

The regulator will take an independent view of the scope for productivity improvement. Indeed, it is likely that the regulator will propose higher productivity gains than the utility may first offer. The CPI±X framework provides sufficient scope for negotiation of productivity targets acceptable to both parties. Acceptance of such targets by the utility is essential for the maintenance of appropriate accountabilities and incentives.

Although a CPI±X control is usually expressed as a cap on prices it could be expressed as a cap on revenue instead.

16.3.3 Capacity utilisation

The Commonwealth Treasury⁹⁸ has proposed an approach that sets prices to maximise the use of capacity. Excess capacity in existing assets can be free, or almost free, in the short-term. Hence, the use of these assets should be maximised. If this approach was adopted, prices would be more volatile. During periods of excess capacity, prices would be lower. As capacity limits were approached, prices would rise. Accompanying the volatility in prices would be a volatility in profits and income flows.

Under the Commonwealth Treasury's approach, the price regulator would focus almost solely on capacity use and the rate of return would not be relevant to the regulator. The Government, as owner, would still require a reasonable return but this would be determined primarily by the timing of investment.

16.3.4 Assessment of alternative forms of price control

The advantages and disadvantages of the rate of return and CPI±X approaches have been discussed frequently. The consensus is that there are three advantages for CPI±X:

- ♦ CPI±X is less vulnerable to cost-plus inefficiency and excessive investment. The regulated utility and its owner have a greater incentive to improve efficiency as the utility can keep the profits from larger efficiency gains

⁹⁸ See *Financial Monitoring of Government Business Enterprises: An Economic Framework*, Treasury Economic Paper No. 14, AGPS, Canberra, 1990.

during the period of the cap. Unlike rate of return targeting, CPI±X does not automatically allow investment to flow to higher revenues .

- ♦ The regulated utility is often free to vary the structure of prices, consistent with the overall constraint. This is of considerable importance where initial prices are thought to be out of line with costs. In practice, the regulator will still be concerned about the structure of prices and the abuse of monopoly power through cross-subsidies.
- ♦ CPI±X may be simpler to operate, for both regulator and utility.

Counter arguments centre on the efficiency claim. There must always be *some* feedback from cost-reduction to eventual price reduction. The utilities will keep the benefits of higher productivity gains for the period of the cap. However, the regulated utilities may believe the short-term advantages of increased efficiency will be more than offset by tougher prices in a subsequent period. So CPI±X's advantages lessen as the period of the cap shortens, or if there is a risk that the regulator may renege on the price/productivity agreement.

In its response to the Interim Report the SWB supports CPI±X price capping but argues that CPI±X may result in higher levels of risk in a capital intensive industry than rate of return regulation, if the ex-ante determined price path is subsequently changed. Given any CPI±X price cap regulation, the Tribunal would seek to minimise uncertainty by providing a medium-term cap. Due to problems in determining asset values, the Tribunal would be unwilling to endorse rate of return regulation based on existing asset values. Also the system wide nature of assets makes rate of return regulation on new assets a difficult process. Treasury's view of rate of return and asset values is discussed in Chapter 8.

In both the UK and USA, regulated utilities are privately owned whereas the Tribunal regulates government-owned utilities. This raises questions of the applicability of the price-control mechanisms to different ownership models. The major difference arises from the absence of a capital market, which imposes disciplines through the continuous appraisal by investors (the market) of the firm's future earning power and the performance of the company and its management. Capital markets provide an independent source of information on the value of the company and the required returns for its shareholders.

Continuous independent valuations of government-owned utilities are not available and the required rate of return must be assessed by analogy (as in the UK case before privatisation). In practice, this may not be a significant disadvantage. Market valuations of a regulated private firm would be based on expectations of future cash-flows. Such valuations may provide limited guidance for price setting as they largely reflect a second-guessing of the regulator's future decisions.

The capacity utilisation approach has a number of theoretical attractions. One of these attractions is that it does not require judgements on the value of the utility or appropriate rates of return. However, the practical problems of implementing this approach are substantial. Firstly, the volatility of prices would create problems for customers. To the extent that expectations of future prices were incorrect, it could result in poor investment decisions by customers. Secondly, problems of financing losses in periods of low prices, and retaining profits to finance capital expenditure in periods of higher prices, should not be underestimated.

Proposal 16.1: The Tribunal considers that the most appropriate form of price regulation for water and related services is the $CPI \pm X$ cap.

16.3.5 Price regulation and demand-side management

An area of concern is the effect of the form of price regulation on incentives for demand-side management. This issue has received more attention in the electricity industry. In their joint submission, the Australian Conservation Foundation and the Australian Consumers Association state:

"With price setting there is the potential to lock suppliers into a fixed price wherein the only way to increase revenue is to increase sales which in the case of water and sewerage is counter to all identified objectives."⁹⁹

Prices which truly reflect costs will be a major step forward in encouraging demand management by customers. Indeed it may well be the most effective demand-management policy option.

However, price regulation can create a bias against demand-side management by the suppliers. As discussed in Chapter 4, if prices always reflected costs, and the responses of customers to price signals were not hindered in any way, there would not be a need, in theory, for demand-side management. In practice, prices can only be a broad approximation to costs and there may be factors, such as lack of information, which inhibit the consumer's capacity to respond by reducing demand.

The setting of fixed prices may discourage the supplier from engaging in demand-side management programs. It may reduce the capacity to design demand-management programs on a commercial basis to enable the sharing of the benefits between the customer and the supplier. In the case of water supply, the cost of the next dam is a major component of the estimated marginal costs. If this is the basis of the usage price, the profits of the supplier will be maximised in the short to medium-term by encouraging over-consumption of water.

⁹⁹ ACF and ACA, *What Price Water?* p.47.

Proposals to reduce the possible disincentives for demand management involve a more flexible link between revenue and the volume of water sold. This could be achieved by one of the following three options:

- i allowing flexibility in the pricing of demand-management services and the pricing of water for participants in demand-management programs
- ii including an allowance for the costs of demand management (including a possible return on the investment in demand management) in the determination of prices
- iii capping total revenue rather than prices

The first of those three options has considerable merit. It would enable the suppliers to obtain reimbursement for demand-management initiatives and provide for a sharing of the benefits of demand management between suppliers and customers. In practice, this is a minimum step and an approach which may have limited application outside large commercial and industrial contracts.

The second option might risk over-investment by suppliers in demand management. Furthermore, the costs of demand management would be borne by all customers, rather than those who enjoy the benefits of more efficient water use and a lower bill for water usage.

The third option would encourage the supplier to promote demand-management options where these are the lowest cost means of meeting a customer's needs. It would not encourage demand-side management, which is not cost-effective from the society's point of view. However, it may result in an inappropriate sharing of the benefits and costs of demand-management programs between customer groups. Under this approach, revenue lost by the supplier from reduced sales of water to customers benefiting from demand-management programs would be recouped through higher prices for all customers.

The Tribunal is concerned about possible inequities, but considers that the approach of fixing revenue rather than prices may offer acceptable risks in the case of water. Demand-side management will be an important element in reducing the impacts of the transition to more cost-reflective pricing in Sydney. As a result, a pricing environment which clearly favours demand-side management may be desirable during this period. A revenue cap could be specified in terms of total revenue or average revenue per property. The latter has the advantage of allowing for growth in the system and reducing the sensitivity of the cap to assumptions about future growth.

Proposal 16.2: The Tribunal proposes that the $CPI \pm X$ cap should apply to average revenue per property rather than to prices.

16.4 Implementation of a CPI±X cap

16.4.1 Level of control of prices

At a minimum, the regulator must set 'X', the overall cap. In addition, the regulator must pay some attention to the structure of prices. However, to preserve managerial autonomy, detailed intervention in the structure of prices should be avoided. Attention should focus only on the more important aspects of pricing structures where these are currently distorted. Issues of concern would include the relationship of price to marginal costs (broadly estimated), the nature of cross-subsidies and, importantly, the distributional implications of price changes. Instead of specifying particular prices, the regulator should set principles and directions for change.

The Tribunal recognises that additional constraints in relation to the maximum impact on customers may limit the pace at which price reform can be implemented.

Proposal 16.3: The Tribunal considers that in regulating prices it should:

- ♦ *set an overall limit in the form of a CPI±X cap on revenue*
- ♦ *provide clear recommendations on the direction of change in price structures*
- ♦ *indicate the order of magnitude of price changes which this may involve*
- ♦ *have the option of setting some side-constraints on the maximum impacts on customers. The number of constraints would be limited to as few as possible*
- ♦ *leave the agency with the responsibility for the development and implementation of a complying price strategy*

16.4.2 Relationship of annual determinations to the cap

The setting of a medium-term price cap will not avert the need for annual determinations, but it will reduce their scope and role considerably.

Under its legislation the Tribunal is still bound to issue a new determination for maximum prices whenever a change is sought. The annual price determination will provide a process to check that the utility has adhered to the price cap and that changing circumstances have not invalidated the cap.

At each annual determination the water suppliers will present a proposal for the following year. The Tribunal expects that the proposals will be consistent with the overall cap and any side-constraints set, unless circumstances have changed so much as to invalidate the medium-term cap.

Proposal 16.4: The primary purpose of the annual determinations would be to ensure compliance with the medium-term price cap, allowing for any substantial change in circumstances.

16.4.3 Retrospective or prospective CPI

The CPI±X cap could be based on either the forecast CPI or the actual CPI for the previous period. The utility may prefer the former, as it links price increases to inflation in that period, which may be a better proxy for the movement in its own costs. In theory, a prospective cap means that the increases customers face will be set relative to the general increase in prices in that year.

In practice, errors in forecasting inflation reduce these benefits and necessitate adjustments to the cap in the following year. Given the magnitude of past forecasting errors, this approach may well yield price paths which are more volatile than a retrospective price cap and vary just as much from the actual inflation rate in the period.

At the margin, a prospective price cap may help reinforce inflationary expectations.

The UK experience would indicate that pricing based on the retrospective CPI is preferable, because it sharply curtails the games a utility can play in its dealings with the Tribunal.

Proposal 16.5 The medium-term price cap should be implemented through annual price changes based on retrospective inflation rates.

16.4.4 Period of the cap

As noted above, a CPI±X cap provides greater incentives for productivity improvements the longer the period of the cap. Setting the period of the cap requires a trade-off between this advantage and the risks and uncertainties that may require an early review or amendment of the cap. Such risks and uncertainties increase with the period of the cap.

In normal circumstances, a price cap for a term of four to five years appears to offer an appropriate trade-off. However, circumstances presently facing each of the water suppliers suggest a shorter period for the cap in this case. The SWB is likely to undergo substantial changes under its new Board and CEO. This makes estimation of the feasible productivity gains over the next two to three years particularly uncertain. The HWC has a more stable environment, but its licence agreement is due to be renegotiated in 1995. Ideally, the licence agreement and the price cap for the HWC should run for the same period. In this report the Tribunal also proposes structural changes for the supply of water services in Gosford and Wyong. For all suppliers, the nature and likely

cost of future environmental standards and of institutional arrangements are uncertain for the medium-term.

In correspondence with the Tribunal the HWC has strongly supported the principle of dovetailing the medium-term price cap with its operating licence. Deferral of the medium-term cap may also fit in with the establishment of a similar operating licence agreement with the SWB, should the Government consider such a licence desirable.

Proposal 16.6: Given existing uncertainties, the Tribunal proposes to review the potential productivity gains in 1995, as well as the outlook for likely capital requirements, before setting caps of four to five years. The Tribunal will need to continue more detailed annual determinations in the interim.

16.4.5 Year-to-year variation with the cap

The $CPI \pm X$ cap could be applied as a cap which must be met either each year or, on average, over the life of the cap.

Under the latter approach, a supplier could choose not to raise prices to the full extent allowed by the cap for that year, subject to the limitations which any side-constraints might impose. The supplier would be able to catch up the deferred increase in the following years.

In its annual determinations, the Tribunal would have to satisfy itself that such forbearance was not achieved by reducing standards below acceptable levels, running down the system by deferring necessary spending, or short-changing legitimate claims such as reasonable dividend payments. The extent to which the Tribunal needs to be concerned with these issues is dependent on the organisational framework of the supplier. For example, the HWC's licence agreement provides safeguards by clearly specifying the performance standards the HWC must achieve. Aside from this, a utility may well wish to have flexibility in the timing of price changes, especially for price restructuring.

Whilst the Tribunal would allow deferral of price increases, it would not allow a supplier to anticipate future increases.

Proposal 16.7: The Tribunal proposes that the medium-term cap should apply on average over the period. A supplier may defer, but not anticipate price increases allowable within the medium-term cap.

16.4.6 Allowance of cost pass-through

Under the $CPI \pm X$ cap, the aim is to make as wide an area of costs part of the risk shouldered by management and shareholders as is politically acceptable. In the UK the issue came to a head with water privatisation, when future capital expenditures to meet increasing water standards were high in relation

to future turnover. The decision was to allow cost pass-through, but to confine it to unforeseen changes in externally imposed standards (for example, environmental standards set by the European Community, to which the UK Government is obliged to conform).

The Tribunal believes that the use of automatic pass-throughs of certain classes of costs is best minimised because it may weaken the incentive for managers to continue to minimise costs in the light of changing conditions.

16.4.7 Coverage of the revenue cap

In principle, a price or revenue cap should be as broadly defined as possible. Exclusions from the cap, other than for those areas where there is effective competition, create distortions and scope for avoidance of the cap.

The Tribunal does not wish to include in the cap revenues from areas other than the core business of the supply of water and sewerage services. Exclusions would include revenue from investment income, asset sales and income from support services which compete for business in open markets.

Whether developer charges should or should not be included is a difficult question. The amount received from developer charges is quite volatile due to fluctuations in property markets. Furthermore, in an accounting sense, such funds are not treated as revenue. Against this, developer charges are a major source of funding and their exclusion from a revenue cap could provide an artificial incentive to increase these charges. On balance the Tribunal considers that developer charges should be included in the revenue cap. To avoid excessive volatility an average of developer charges over, say, three years could be used.

The HWC has proposed that the Hunter Sewerage Service Charge and the environmental levy should be excluded from the cap as they are subject to separate indexation arrangements to ensure the viability of the Hunter Sewerage Project. The Tribunal agrees with this proposal, but notes that in setting the cap to be imposed on the remaining revenues it will have regard to all revenues, including those subject to separate indexation agreements.

In response to the Interim Report, the HWC raises the problem of the effect of changes in consumption on revenues. Consumption will vary from year to year due to changes in underlying demand, which may be predictable, and changes in climatic conditions, which are largely unpredictable. A benchmark consumption level is necessary for a revenue cap. It is proposed that the suppliers' forecasts of underlying demand be used as a proxy. In any period there will be a variation in actual volumes from those forecast. The revenue cap in the following year will be adjusted by the revenue shortfall or excess (plus interest costs or income) due to this variation.

The HWC has also pointed out that the number of properties can have a significant effect on the calculation of the average revenue per property. Not all customers have both water and sewerage services. Over time, some water only customers will be connected to sewerage reticulation. Specification of the revenue cap in terms of the average number of water only customers and water and sewerage customers, as suggested by HWC, appears appropriate.

Proposal 16.8 The cap on revenue per property should include all service and usage revenue and developer charges (averaged) except for the Sewerage Access Charge and the environmental levy in the Hunter. The cap should be based on forecast consumption, with adjustment factors for variations from forecast, and the average of the number of water only and water and sewerage customers.

16.4.8 Coverage of the Pricing Tribunal

The current review covers the water services of the SWB, the HWC and Gosford and Wyong Councils. The Tribunal's Act does not cover the many country town water supply schemes that are operated mostly by local councils.

As discussed in Chapter 17, the Tribunal's view is that the principles developed in this report are equally applicable to country town schemes. The PWD has expressed concern about the practicality of this approach as the combination of lumpy investments and a small customer base can result in irregular and large price adjustments. Clearly a uniform 'X' factor for all country town schemes would be inappropriate. However the Tribunal envisages that the 'X' factor would vary between schemes and have sufficient flexibility to allow for local factors such as augmentation programs.

However, the Tribunal does not have the capacity to review each of these schemes in detail. Instead, the PWD or an Office of Water, established through the reallocation of existing resources, could monitor the performance of these suppliers and oversee the application of the principles developed by the Tribunal.

16.6 Summary of proposals

The most appropriate form of price regulations for water and related services is a $CPI \pm X$ cap on average revenue per property.

In the medium-term the Tribunal proposes to:

- ♦ *set an overall cap on revenue in the form of $CPI \pm X$*
- ♦ *provide clear recommendations for the direction of change in price structures*
- ♦ *indicate the scale of price changes which this may involve*

- ♦ *set side-constraints on the maximum impacts on customers of particular interest. The number of constraints will be limited to as few as possible*
- ♦ *make the utility responsible for the development and implementation of a price strategy subject to these side-constraints*

Due to uncertainty in the industry, the Tribunal proposes to introduce the first medium-term caps in 1995. Under this approach:

- ♦ *annual price determinations will provide a check to ensure compliance with the cap, and to check that changed circumstances have not invalidated it*
- ♦ *the cap will be based on retrospective CPI*
- ♦ *the cap will apply on average over the period. Suppliers will be able to defer but not anticipate annual increases*
- ♦ *the cap should be calculated on the basis of forecast consumption, with adjustments for forecast errors, and the average number of customers.*

17 LOCAL GOVERNMENT ISSUES

17.1 Introduction

At present, coverage of local authority water services by the Government Pricing Tribunal Act is limited. Gosford and Wyong Councils are included in the list of agencies whose services are covered by the Act. Water Supply Schemes which are operated by the Public Works Department (PWD) are also covered by the Act. Although county councils which supply water are covered by the Act, departments of local authorities which supply water are not.

This situation leads to inconsistencies, particularly where county councils (which are covered) provide water to departments of local authorities (which are not) for supply to final customers. For example, Rous County Council sells bulk water to the Shires of Ballina, Byron and Richmond River, and Lismore City Council.

This chapter:

- ♦ outlines the Tribunal's terms of reference to examine the coverage of the Government Pricing Tribunal Act and investigate the Act's application to local government water supply
- ♦ discusses the advantages and disadvantages of extending coverage of the Act
- ♦ discusses a proposal to create a Central Coast Water Supply Authority
- ♦ explains how Gosford and Wyong might implement a restructuring of their joint water supply scheme

17.2 Terms of reference

The Tribunal's terms of reference for the water inquiry require it to:

- ♦ examine the coverage of the Government Pricing Tribunal Act with respect to government agencies supplying water and related services other than the Sydney Water Board, Hunter Water Corporation Limited, Gosford City Council and Wyong Shire Council.
- ♦ investigate policy issues related to the application of the Government Pricing Tribunal Act to the provision of water, sewerage and drainage services by local authorities throughout the State.

17.3 Advantages and disadvantages of extending coverage

The Government Pricing Tribunal was established to enable prices for commercial services provided by government monopolies to be set on a less political and more rational basis. The Tribunal intends to encourage gains in efficiency in the organisations which it is regulating and to ensure that these efficiency gains are passed on to customers as well as to the owners of the assets.

The Tribunal is required to set maximum prices annually for the agencies which are subject to its scrutiny, and to undertake periodic reviews of pricing policies. The Tribunal is required to take a number of factors into account in determining prices, including cost and rate of return and the effect of its decisions on inflation, efficiency, environmental consequences and equity.

There are three main arguments for extending the scope of the Tribunal's work to include the pricing of local authority water services not presently covered by the Act:

- i Water services provided by local authorities are as much commercial monopoly services as are those provided by State Government agencies. The pricing policies of water supply agencies which are departments of local authorities may benefit from scrutiny by the Tribunal; in particular, the principles set out in this report may be relevant as well as the criteria for determining prices, as set out in the Act.
- ii Some local authorities might welcome the involvement of the Tribunal in setting prices as a way of reducing the extent of political influence over price setting.
- iii It is desirable for water agencies throughout the State to operate, as far as possible, under the same set of rules. This will help to ensure that resources, including capital, are allocated as efficiently as possible.

There are some problems, however, which need to be considered in deciding whether to extend coverage:

- ♦ It is beyond the capacity of the Tribunal, in its present form, to determine prices for each of the many local authority water supply agencies in New South Wales.
- ♦ Local governments are unlikely to welcome determination of prices for local authority water services by the State Government. However, local governments may be willing to *apply pricing policies* which have been developed by an independent organisation such as the Government Pricing Tribunal.

The advantages of extending coverage may be obtained, and the disadvantages minimised, through the following arrangements:

- ♦ The Government Pricing Tribunal Act could be amended to include all local authority water and related supply services.
- ♦ Apart from the SWB, the HWC, Gosford and Wyong Councils, and schemes operated by the PWD, the Tribunal's involvement would be limited in the first instance to developing general principles which departments of local water authorities would be encouraged to follow within a reasonable period.
- ♦ An Office of Water would be set up to assist operators to apply the pricing principles, to monitor compliance with the principles, and to report periodically to the Tribunal. If the Office of Water was to reside in the PWD, there would have to be a clear internal separation between Public Works' administration of capital subsidy schemes and the Office of Water.
- ♦ The need for any further and more direct involvement by the Tribunal in price regulation would be considered at a later stage, depending on the success of these arrangements.

In a submission to the Tribunal following release of the Interim Report on Water, the Local Government and Shires Association of NSW argues that councils should retain autonomy in setting prices for water and sewerage services to reflect local conditions. The Association is concerned that the creation of an Office of Water would diminish local autonomy. Some councils (for example, Cabonne Council and the Central Tablelands County Council) have made similar submissions to the Tribunal. These councils are also concerned that the establishment of an Office of Water would cause duplication and waste.

By contrast, the Public Works Department argues that it is already undertaking most of the functions of an "Office of Water". (The main difference is that the Office of Water would also implement the pricing principles which are included in this report.) An Office of Water, with functions as set out above, could (at least in the first instance) be located within the Public Works Department and could be encouraged to continue the co-operative working relations which have been established between councils and the PWD. The Office of Water might also be assisted by an advisory committee with substantial local government representation.

The Tribunal believes that its original recommendations should stand.

Recommendation 17.1: The Tribunal recommends that the Government Pricing Tribunal Act be extended to cover all local authority water supply services, but that declaration of relevant services be deferred for the time being.

Recommendation 17.2: The Tribunal recommends that unless more detailed regulation is shown to be necessary, the Tribunal's involvement should be limited to developing broad principles for pricing. An Office of Water or its

equivalent should be given formal responsibility to assist the Tribunal to oversee and monitor the implementation of these broad pricing principles by the local water authorities. The relevant principles are to be found in recommendations in Chapters 9 through 13.

17.4 Gosford and Wyong

17.4.1 Issues

Gosford City and Wyong Shire together comprise major urban area which is part of Greater Sydney. Rapid population growth is expected to continue over the next few years and substantial investment will be required to provide water, sewerage and drainage services to this increased population.

Water supply and related services are provided by specialist organisations in Sydney and Newcastle and by departments of the local authorities in Gosford and Wyong.

There might be advantages if all these services were to be provided by specialist organisations in Gosford and Wyong. Population growth and economic development may have proceeded to such an extent that a division of labour would be desirable between the essentially commercial functions of providing water supply and sewerage services, and the broader responsibilities of the councils. This has been recognised to some extent by declaring Gosford and Wyong Councils to be authorities under the Water Supply Authorities Act. (However, Gosford Council points out that an important reason for this change was to give the councils greater flexibility.) The two councils have worked co-operatively for some years to develop a joint water supply system and further integration of their operations may well be desirable. This could form the basis of a water supply and sewerage authority for the central coast of NSW.

Although the Sydney Water Board and the Hunter Water Corporation are required to pay dividends to their owner, there is no such requirement for the water and sewerage operations of Gosford and Wyong. A common set of rules would be more equitable and would overcome any tendency for development to be encouraged unduly in a particular area because of differences in the rules. By not recognising the requirement to pay dividends, a water supplier may make poor resource allocation decisions by signalling prices to its customers that do not cover all costs.

However, no evidence has been presented to the Tribunal to suggest that the present institutional arrangements for Gosford and Wyong result in poor resource allocation decisions. It is true that average residential bills are higher in Gosford and Wyong than in Sydney and Newcastle. But this difference is due, at least in part, to higher environmental standards in Gosford and Wyong, a higher rate of return (especially for sewerage assets),

and the absence of cross-subsidies. Bills may decline over the next few years, especially in Gosford. By contrast, residential bills may increase in Sydney.

Operating costs per capita appear to be lower in Gosford and Wyong than in Sydney and Newcastle. This, in part, is due to relatively low maintenance costs of new infrastructure. There is no reason to expect that costs would be lower if the water supply operations of Gosford and Wyong Councils were combined with those of the Sydney Water Board or the Hunter Water Corporation.

There are some advantages in having the local authority provide water supply, sewerage and drainage services. In particular, the fragmentation of responsibility for drainage between the water agency and several local authorities does not occur in Gosford and Wyong. These authorities extend over the relevant catchments.

On balance, the Tribunal believes that a Central Coast Water Authority should be established, provided that this can be done in a way which is acceptable to the residents of Gosford and Wyong.

17.4.2 Implementation

There are several ways in which a Central Coast Water Authority model could be structured. At the outset, the ownership of the assets and the business that would carry out the water and sewerage services must be clarified.

It is important to note that it is not for the Tribunal to determine the ownership of the assets and business. This is a matter for the State and local governments concerned.

The Tribunal's main concern is that the authority should operate in an efficient way and that the prices charged by the authority should reflect efficient costs and an appropriate return (profit margin) on the assets of the water and sewer business.

The following arrangements assume that a Central Coast Water Authority would operate on a commercial basis on behalf of the owners of the water and sewerage assets:

- The authority would manage the assets and be responsible for the running of water and sewerage operations on behalf of the owner of the assets, whether it was the State Government or the respective councils, and would meet service standards set down by the owner(s) and any licence conditions set by regulators such as the EPA.
- The authority would be responsible for finance and policy and would co-ordinate and rationalise operations and investments.
- The authority could either operate the water supply and sewerage system, or contract with the two councils for them to continue to run these

services. In the latter case, the authority could consider competitive tendering for the contracts in the future.

- ♦ The authority would be required to fund a limited head office staff from revenues and earn a return on the assets and the business on behalf of the owner(s). This return would be paid by dividends to the owners of the business/assets.

17.4.3 Views of Gosford and Wyong Councils

The Tribunal's Interim Report on Water includes a recommendation that Gosford and Wyong Councils should explore whether a Central Coast Water Authority should be established. Gosford City Council has endorsed this recommendation "as a matter for Gosford and Wyong Councils to determine rather than Parliament or the executive government". Gosford Council has also noted that there are options short of establishing a Central Coast Water Authority which are worth considering, such as corporatisation of the existing Joint Water Supply Committee of Gosford and Wyong Councils.

Wyong Council is opposed to amalgamation with either the SWB or the HWC and is also opposed to the creation of a Central Coast Water Board.

The Tribunal continues to believe that Gosford and Wyong should explore the possibility of creating a Central Coast Water Authority. It notes, however, that there are other arrangements for closer co-operation which the Councils may wish to consider, possibly as transitional steps towards such an authority.

Recommendation 17.3: The Tribunal recommends that Gosford and Wyong Councils explore opportunities for extending the operations of the current Joint Water Supply Scheme, including the establishment of a Central Coast Water Authority, which would cover water and sewerage services.

17.5 Water supply agencies administered by the Public Works Department

Two water supply agencies which are administered by the NSW Government's Public Works Department are listed as standing reference agencies in the Government Pricing Tribunal Act. These are the Fish River Water Supply and the South West Tablelands Water Supply.

These agencies do not fall within the terms of reference for the present inquiry. The Tribunal intends to determine pricing policies for these agencies as a follow up inquiry after institutional arrangements have been finalised after 1994.

17.6 Summary of recommendations

The Government Pricing Tribunal Act should be extended to cover all local authority water supply services, but declaration of relevant services should be deferred for the time being.

Unless more detailed regulation is shown to be necessary, the Tribunal's involvement should be limited to developing broad principles for pricing. The Office of Water or its equivalent would oversee and monitor the implementation of these broad pricing principles by the local water authorities. The relevant principles are to be found in recommendations in Chapters 9 through 13.

Gosford and Wyong Councils should explore opportunities for extending the operations of the current Joint Water Supply Scheme including the establishment of a Central Coast Water Authority, which would cover water and sewerage services.

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GLOSSARY

access charge: a charge to recover the costs of providing the service, payable by all customers, and it is not related to usage

BOO(T) arrangements: contracts between a government agency and the private sector regarding infrastructure provision. The contractor builds, owns, operates the infrastructure over an agreed period, at the termination of which, the infrastructure may be transferred back to the government agency

biochemical oxygen demand: BOD is a means of measuring the oxygen depletion in water caused by large volumes of organic material

catchment: an area of land that catches water to supply a river system

Clean Waterways program: a 20 year expenditure program by the SWB to clean up the harbours, beaches and waterways of Sydney, Illawarra and the Blue Mountains

community service obligations: non-commercial activities which are undertaken by government agencies, and which meet social objectives identified by the Government, eg pensioner rebates

cross subsidy: a measure of the variation between the cost of service provided and amount paid by a customer. The difference is funded by payments from other customers

demand side management: actions of water suppliers to affect the demand for water, sewerage and drainage services

developer charges: charges payable by land developers for infrastructure provided by water suppliers including headworks costs, and cover the costs of connecting to the water network

domestic waste water: waste water which may be discharged to a sewer, from premises used exclusively for residential purposes. Sources include toilets, showers, baths, sinks and washing machines

drinking water quality: the suitability of water for drinking often depends on how pure it is, and how free of pollution it is

effluent: liquid discharged from a sewage treatment plant after treatment

filtration: physical removal of particles by passing through a fine strainer or sand

flood mitigation: programs which increase the ability of dams to hold water, and decrease the chance of major flooding

fluoride: a natural chemical which is added to water to prevent tooth decay in infants and children

greywater: partially treated waste water suitable for non-potable uses

- hazardous waste*: waste containing significant quantities of a substance(s) which may present a danger to the life of living organisms when released into the environment, or to the safety of humans or equipment if incorrectly handled
- head work costs*: costs associated with major water infrastructure such as dams,
- infrastructure*: stock of fixed capital equipment
- in-stream water quality*: the ability of water in rivers to support a range of uses for the benefit of society including the protection of aquatic ecosystems, recreation, drinking water, and agricultural and industrial uses
- managed water cycle*: the system of controlling the natural water cycle so that water is available for human needs, and water quality is maintained
- marginal costs*: the additional cost associated with consuming an additional unit
- pensioner rebate*: total water bill of any eligible pensioner is reduced by a fixed amount
- pollution tax*: charge placed on users who pollute the environment
- primary treatment of sewerage*: waste water treatment which involves screening, grit removal, sedimentation, sludge or other means of sludge disposal
- public good*: consumption by one person does not affect the amount available for consumption by others and where an individual can not be excluded from the benefits of the services provided
- rate of return*: measure of profits as a percentage of the value of assets
- safety net*: mechanism(s) to ensure consumers can afford to consume their required level of services
- secondary treatment of sewerage*: primary treatment plus a biological process to remove organic matter
- service availability charge*: see access charge
- sewerage discharge factor*: an estimate of the percentage of water returned to the sewage system
- special environmental levy*: a charge paid to the SWB specifically for cleaning up pollution and protecting the environment
- stormwater*: surface run-off derived from local rainfall
- suspended solids*: insoluble matter suspended in effluent
- tertiary treatment of sewerage*: secondary treatment plus filtration and or disinfection

trade-waste: all the by-products of industry and commerce which the manufacturer cannot use any further, and includes oil and grease, pesticides, metal and nutrients

usage charge: charge placed on customers for each unit consumed

waste water: discarded water of any origin clean or contaminated, that is discharged into a sewerage or drainage system

water cycle: the endless cycling of water through the environment, as it goes through its three different states - liquid, gas, and solid

water treatment: when water is screened to remove twigs, weeds and fish, and then disinfected by adding chlorine which kills disease causing micro-organisms

ATTACHMENT 1 TERMS OF REFERENCE

A1.1 Review Of Pricing Policies Of Government Agencies Supplying Water And Related Services

The Government Pricing Tribunal is conducting a review of the pricing policies for water and related services specified in the Government Pricing Tribunal Act 1992, which are provided by the Water Board, Hunter Water Corporation Ltd, Gosford City Council, and Wyong Shire Council (Matter No. SRI/92/1). While having regard to the matters listed in Section 15 of the Government Pricing Tribunal Act, the specific terms of reference for the review will cover:

1. the cost of providing the services and the need for greater efficiency in the supply of services so as to reduce the costs of supply for the benefit of consumers and taxpayers
2. the protection of consumers from abuses of monopoly power, in terms of price, pricing policies and standards of service and access to alternative sources of supply
3. the evaluation of alternative pricing structures for water, wastewater and stormwater, including usage, access, and property based charging, having regard to relative impacts on domestic, commercial and industrial users
4. economic, social and urban development impacts, including distributional and economic development effects, that may arise from any program of price restructuring
5. the effect of alternative pricing policies on the demand for water services, and the implications for major water supply and related water, wastewater and stormwater infrastructure development
6. the protection of the environment by appropriate pricing policies that take account of all the feasible options available to protect the environment
7. the impact of alternative environmental and quality standards on the cost and benefits of providing the service and the efficient pricing of services
8. the impact on pricing policies of borrowing, capital structure, rate of return on assets and investments, dividend requirements and the impact of any need to renew or increase relevant assets

9. the impact on pricing policies of any arrangements that the agency has entered into for the exercise of its functions by some other person or body
10. the role of public education covering the implications of alternative pricing structures on water usage and supply costs
11. the coverage of the Government Pricing Tribunal Act with respect to government agencies supplying water and related services other than the Water Board, Hunter Water Corporation Ltd, Gosford City Council and Wyong Shire Council

Under Section 13(1)(c) of the Act the Premier has requested the Tribunal to consider the following matters when making its investigations:

- i the general policy issues involved in the application of the Government Pricing Tribunal Act to the provision of water, sewerage and drainage services by local authorities throughout the State. The Tribunal is requested to provide advice on the policy aspects only, not to make any determinations with respect to the prices charged for services by the local authorities concerned. The Tribunal is requested to provide this advice prior to the finalisation of the inquiry;
- ii the introduction of competition or contestability into the provision of any of the services which are the subject of the inquiry; and
- iii the impact of environmental standards on the quality of water and wastewater services and on the cost and price of providing those services, and the general principles that should apply to pricing environmental services associated with water and wastewater.

Thomas G Parry
Chairman

29 August 1992

ATTACHMENT 2

SUBMISSIONS RECEIVED FROM PERSONS AND ORGANISATIONS

A2.1 Initial Submissions

A2.1.1 Government agencies

Broken Hill Water Board
Central Tablelands County Council
Department of Consumer Affairs
Department of Housing
Department of State Development
Department of Water Resources
Environment Protection Authority
Gosford City Council
Hunter Water Corporation
Junee Shire Council
Oxley Electricity & Water
Rous County Council
Social Policy Directorate, Ministry of Health and Community Services
The Treasury
Water Board
Wyong Shire Council

A2.1.2 Associations and organisations

Australian Chamber of Manufacturers
Australian Conservation Foundation
Australian Hotels Association (NSW)
Australian Water & Wastewater Association Inc
Australians for an Ecologically Sustainable Population Inc
Braidwood Environment Group
Byron Environment Centre
Chamber of Manufactures of NSW
Citizens' Action Movement
Coalition of Hawkesbury and Nepean Groups for the Environment
Combined Pensioners and Superannuants Association of NSW Inc
Council of Social Service of NSW
Council on the Ageing
Country Mayors' Association
Housing Industry Association, NSW Division

Local Government Association of NSW & Shires Association of NSW
National Association of Nursing Homes and Private Hospitals Inc
Nature Conservation Council of NSW
New South Wales Golf Association Ltd
Newcastle Chamber of Commerce & Industry
Nursery Industry Association of NSW Ltd
Ocean Watch
Registered Clubs Association of NSW
Riverwood Residents Action Group
Royal NSW Bowling Association Inc
Scouts Association of Australia, NSW Branch
State Chamber of Commerce (NSW)
Tenants' Union of NSW Co-Op Ltd
The Budawang Committee
Vaucluse Progress Association
Warnervale Community Association Inc

A2.1.3 Private industry

Australian Paper Manufacturers (Container Materials Group)
Banksia Food Products
Bernly Private Hotel
BHP
Gaitrent Guest House
Honey Corporation of Australia Ltd
Hymix Concrete Pty Ltd
ICI (Botany Operations)
Investment Projects Management

A2.1.4 Private individuals

Bendall, K	Jefferay, E
Carey, V	Jones, R A & M N
Cavanough, K	Kelgoer, R A
Cole, A E	Koletti, A
Coyle, S & L	Koletti, C
Gow, J	Macoun, R E
Green, T A	Martin, D M
Higgins, P	Muschalik, M
Hines, R W	Smith, J
Holden, P A & R L	Spitzer, S
Huggett, R	Trumm, H
Hutton, R A	Turnbull, P M
Gurrieri, E	Vella, C
Jackson, S M	Wheeler, S

A2.2 Submissions on Interim Report

A2.2.1 Government agencies

Cabonne Council
 Central Tablelands County Council
 Department of Housing
 Department of Planning
 Department of Public Works
 Gosford City Council
 Hunter Water Corporation
 Rous County Council
 Strata & Tenancy Commissioner's Office
 The Treasury
 Water Board
 Wyong Shire Council

A2.2.2 Associations and organisations

Australian Chamber of Manufactures
 Chamber of Manufactures of NSW
 Coalition of the Hawkesbury and Nepean Groups for the Environment
 Council of Social Service of NSW
 Housing Industry Association, NSW Division
 Local Government Association of NSW & Shires Association of NSW
 Long Term Unemployed Private Sector Tenants
 Mirrabooka Public Tenants Group
 Nature Conservation Council of NSW
 NSW Irrigators' Council
 Property Owners' Association of Australia
 St Huberts Island Residents' Association
 Surry Hills' Tenants Group
 Sydney & Central Coast Region Public Tenants' Council Inc
 The Caravan & Relocatable Park Residents' Association (Far North Coast)
 Total Environment Centre
 Urban Development Institute of Australia
 Vacluse Progress Association

A2.2.3 Private industry

Australian Paper Manufacturers (Container Materials Group)
 Banksia Food Products
 BHP Steel
 McLaren Hotel

A2.2.4 Private individuals

Residents No 2 Mckye Street Waverton
Wolstenholme, J

All submissions are available for inspection at the public access room located at the Tribunal's office, and hard copy documents can also be purchased.

ATTACHMENT 3

PUBLIC HEARINGS AND CONSULTATION

A3.1 Initial Public Hearings

The Tribunal held initial Public Hearings for this review in Sydney on 26-28 October 1992 and in Newcastle on 5-6 November 1992. The following persons and organisations were represented at these hearings:

SYDNEY:

Water Board	Mr Paul Forward Mr George Bawtree Mr Quill Mrs Kelly
The Treasury	Mr Paul Moy
State Government Social Policy Directorate	Ms Jane Schwager Ms Elizabeth Savage
Environment Protection Authority of NSW	Ms Lisa Corbyn
Department of Consumer Affairs	Ms Susan Dixon
Nature Conservation Council of NSW	Dr Judy Messer
Australian Conservation Foundation & Australian Consumers' Association	Mr Michael Mobbs Ms May Leatch (Shoalhaven Branch) Ms Bridget Dowsett (ACF Sydney) Ms Sue Salmon (ACF Sydney) Mr Clive Holmes (Australian Consumers' Association)
Coalition of Hawkesbury & Nepean Groups for the Environment (CHANGE)	Ms Jenny Smith
Braidwood Environment Group	Ms Angela Marshall
Department of Housing	Mr Richard Hunt Mr Grahame Knight

	Mr Ken Maxwell
Housing Industry Association	Ms Pat Gilchrist Mr Roseth Mr Appleby
Registered Clubs Association of NSW	Mr Keith Kerr Mr David Glassop Mr Gordon Wicks
Nursery Industry Association of NSW	Mr Ken Peters Mr Alberty
NSW Department of State Development	Dr Paul Patterson
Australian Paper Manufacturers	Mr Lachlan McLean Mr Peter Desage Mr Athol McCoy
Australian Chamber of Manufactures	Mr Andrew Doig Mr David Grant Mr Bill Pridmore Mr Iain Murray
Chamber of Manufactures of NSW	Ms Narelle Kennedy Ms Kathryn Moloney Mr Maris Derums
BHP	Mr Adrian Begg Mr Bill Garrod Mr Alex Yarovy
ICI	Mr Jesse Moore Mr Robert Guttentag Mr Kevin Brady
Banksia Foods	Mr Darryl Skinner Mr Montague Williams
Ocean Watch	Mr Duncan Leadbitter
Combined Pensioners Association	Mr Bill Otley
Council of Social Service of NSW	Ms Lyn Gain Mr Robert Fitzgerald
Property Owners Association , Private Hotels & Boarding Houses Association	Mr Keleny

	Mr John O'Connor
National Association of Nursing Homes & Private Hospitals	Ms Kerry Jones
Aged Services Association of NSW & ACT Inc	Mr Gordon Cumming
NEWCASTLE:	
Hunter Water Corporation	Mr Paul Broad Mr David Evans
Newcastle Chamber of Commerce	Mr Graeme Jefferies Ms Jenny Roberts
Gosford City Council	Mr Keith Dedden Mr Chris Gallagher Mr Peter Wilson
Gosford Rate Payer	Mr Peter Turnbull
Wyong Shire Council	Mr David Cathers Mr Ken Grantham Mr Greg Asche Mr Cameneuli
Public Works Department	Mr Peter McKenzie Mr Sam Samra
Department of Water Resources	Mr Brian Cummings
Department of Local Government	Mr Tim Rogers
Local Government Association of NSW	Mr Bill McDonald Mr John McSullea
Oxley County Council	Mr Bob Newling Mr Frank Harrison
Central Tablelands County Council	Mr Bruce Noble Mr Stephen Jewell
Rous County Council	Alderman Crother Mr O'Sullivan

A3.2 Further Public Hearings

Further Public Hearings were held by the Tribunal following the release of *Water an Interim Report*. These Hearings were held at Sydney on 21 and 24 June 1993, Newcastle on 1 July 1993, and Wyong on 2 July 1993. The following persons and organisations were represented at these hearings:

SYDNEY:

Nature Conservation Council	Dr Judy Messer Mr Peter Prineas
Council of Social Service of NSW	Mr Stephen Rix
Surry Hills Tenants Group	Mr Paul Gottschalk
Sydney and Central Coast Region Public Tenants' Council	Ms Margaret Perryman
Water Board	Mr Paul Broad Mr Arthur Butler Mr George Bawtree
Chamber of Manufactures of NSW	Mr Paul Orton Ms Kathryn Moloney
Banksia Food Products	Mr Darryl Skinner Mr Montague Williams
Local Government Association of NSW	Mr John McSullea Mr Robert Verhey
Central Tablelands County Council	Mr Bruce Noble Mr Stephen Jewell
Australian Chamber of Manufactures	Mr Andrew Doig Mr David Grant Mr Phillip Butcher

NEWCASTLE:

Hunter Water Corporation	Mr David Evans Mr Paul Emery
BHP	Mr Lynton Nicholas
Public Works Department NSW	Mr Neil Turner Mr Peter McKenzie Mr Sam Samra

WYONG:

Wyong Shire Council	Mr John Dawson
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Gosford City Council

Mr Peter Wilson
Mr Chris Gallagher
Mr Tony Bowditch
Mr Stephen Fry

Full transcripts of all Public Hearings are available for public inspection at the Tribunal's office, and copies of computer discs and hard copy documents of the transcripts can also be purchased.

A3.3 Public consultation

A3.3.1 Public seminars

The Tribunal held four Public Seminars to give the general public an opportunity to better understand the issues covered by the Review and allow them to express their views about water prices. The seminars were held in Sydney, Liverpool and Penrith as follows:

Sydney:

14 October 1992 - How should Sydney pay for water?

15 October 1992 - The impact of current and future environmental standards water pricing.

Liverpool - 5 February 1993

Penrith - 12 February 1993

The seminars were advertised in the Sydney Morning Herald and the Daily Telegraph Mirror and in relevant local newspapers. Speakers at these seminars included representatives of the Water Board, the Environment Protection Authority and the Tribunal.

A3.3.2 Publications

To assist public understanding of the issues involved in this review the Tribunal's Secretariat circulated the following discussion papers in September 1992:

Paying for Water - An Issues Paper

What Price Water? The future of water services in NSW

Further discussion papers and research reports have been released as companion volumes to this report:

Discussion Paper No 2 *Regulation of the Water Industry in NSW*

- Discussion Paper No 3 *Report of the Working Party on water, wastewater and stormwater demand, engineering and cost issues*
- Research Paper No 1 *Changes in the pricing of water and related services in the Water Board region: distributional impacts and compensation policies*
- Research Paper No 2 *Developer Charges and Urban Development*

A3.3.3 Public views on paying for water

A3.3.3.1 "Have your say in what you pay"

During October 1992 the Tribunal ran the following advertisement in the Sydney Morning Herald, the Daily Telegraph Mirror, the Newcastle Herald and the Gosford Express to seek public views on paying for water.

HAVE A SAY IN WHAT YOU PAY FOR WATER

The Government Pricing Tribunal, New South Wales is seeking your views on how we should pay for water in the future.

How we pay for water is an important issue because:

- The way we pay for water may encourage more careful use, with favourable environmental consequences.
- Water pricing policies have to take into account large scale costs arising from population growth, urban sprawl and improved environmental standards.
- Any water pricing system has to take into account equity and the ability to pay.

What's wrong with the current way of paying for water?

The Government has asked the Tribunal to inquire into the ways in which water services may be delivered in the fairest and most economical way. There are a number of arguments for and against the different pricing systems employed by the various water authorities and these need to be examined. For example, is it fair that some user groups subsidise the water costs of other groups and if so, to what extent; how can all members of the community be assured of the right to a quality water supply and how much is the community prepared to pay for environmental standards?

What are some of the ways of paying for water?

The major urban suppliers use various combinations of fixed charges, usage charges and property taxes. The Tribunal is particularly interested in whether usage charges should become more important and property taxes less important, as recently suggested by the Industry Commission.

Arguments for property taxes include: a traditional and familiar payment structure which recognises ability to pay. Arguments against include: they are not, by themselves, an incentive to save water as they bear no relationship to the amount of water used.

Arguments for usage charges include: provides an incentive to save water as users pay for amount used. Arguments against include: large water users will pay more and water bills will become more variable.

How you can make your views known to the Tribunal.

- You can write to the Tribunal setting out your views. Please write before 23 October 1992.
The address is: Government Pricing Tribunal
GPO Box 3400
SYDNEY NSW 2001
- Public Seminars will be held on some major issues. These will take place between 4.00pm and 7.00pm on 14 and 15 October in Conference Room 5, MSB Conference and Training Centre, 207 Kent Street, Sydney.

Want more information?

The Government Pricing Tribunal has produced a booklet and a larger, more technical issues paper which discuss the issues to be considered in the inquiry. A copy of either of these publications can be obtained by writing to the Tribunal. You can also fax your request on (02) 228 4722.

The price we pay for water is of concern to us all. The Tribunal wants to hear from everyone who has a view on how we should pay for water.



A3.3.3.2 Public response

A total of 105 letters were received in response to the advertisement. The following analysis evaluates the main views that were contained in this correspondence.

Summary of main views on user pays for water

	Per Cent
For user pays	69
Against user pays	8
Combination of above	.2
Other (offer no alternative)	<u>21</u>
Total responses	100

Summary of major comments (numbers of responses)

Those advocating a user pays system:

Concerned over effect on incomes of families	19
Concerned over pensioners equity and ability to pay	11
Concerned about conservation	38
Concerned over loss of gardens	4
Concerned over wastage of gardens	2
System should include user pays sewage charges	6
System should include a free water allowance & usage charges	10

Service availability charges:

For	3
For, but limit the charge	10
Against	6

Renters and tenants:

Individual meters and accounts are necessary	6
Tenant should pay usage charges	6
Owner should pay usage charges	1

Other comments:

Rainwater tanks should be used for garden watering	17
Questioned use of environmental levy	13
Cross subsidy must be eliminated	9
Vacant properties should not pay service/connection fee	4

Selected views (edited and summarised)

'Optimal system will involve both usage charges and property taxes, where the property tax is applied to a fixed component of water rates and usage charges are levied on households based on quantity of water used divided by a factor derived from the number of people normally resident therein.'

'If we are concerned about reducing water usage, we should slow urban growth, and encourage people to install rainwater tanks.'

'Any change in the charging system must reflect family needs, family size, and family income levels. Current charges are biased against families'.

'In Malaysia water is charged on usage (\$ x/1000 gallons), and there is little wastage, water quality is high, and business competitive.'

'Against catchment drainage levy when not affected by flooding.'

'An average sewage charge based upon normal water usage should be applied when a dramatic rise in water consumption can be attributed to non sewerage demands (50% sewer discharge factor is unfair). E.g. watering the garden in summer raises water use, but not sewer use.'

'More water efficient consumer goods should be encouraged, as well as the planting of native flora species which require less watering.'

'With an extra [rainwater] tap, people could have the choice of using free or paid water, while user pays pricing would be an incentive to turn on the free tap first.'

'We should have a watercare levy like medicare, with excess usage charges.'

'As a retired senior citizen I am still expected to pay in full for services such as water, electricity and other rates, unlike the government pensioners.'

'Developers should pay for costs associated with new development. The Government should not extract annual payments from utilities such as SWB.'

'I could have doubled the amount of water I used and still only increased my bill by 5%. Suggest ongoing explanation of the need for the environmental levy and the benefits derived from its imposition.'

'The current method of billing discriminates against the family due to it being stepped in nature.'

'Water rates should include a fixed charge to cover maintenance and supply costs, and a usage charge for the amount of water used.'

'We should encourage the re-use of water where this does not create a health risk. There should be incentives for households to retain some stormwater on their properties.'

'There is a case to be made for a sliding scale of charges, where the first Kl costs little, and the price for each subsequent Kl is increased. This would discourage waste, but also discriminate against large households.'

'13 Kl industrial use cost four times 13 Kl for domestic use. Business should receive benefits for being large users, as they do for electricity.'

'People have no respect for water as a resource based on current charging system. Those who conserve water are subsidising those who waste water. Public education of huge environmental costs if we don't implement a user pays system, and water saving devices. Water authority initiatives such as more informative billing, up to date information on water saving methods, free tap washers. Govt legislation in mandatory fitting of water saving devices will encourages the production of such devices.'

'User pays system with a fixed admin charge, a fixed per Kl charge, and a rebate if usage below certain level. With commercial properties the fixed charge would be related to floor area. For industrial properties the fixed charge would be based on industry type, so those who pollute share the costs of doing so.'

'All commercial units pay a minimum charge, instead of there being a minimum charge for the whole building, and then divided accordingly.'

'Yearly billing, with breakdown of environmental spending and other forecast capital expenditure.'

'A structured user pays system which scaled so that it differentiates between different classes of users. No bulk discounts. Increases should be tied to CPI. No dividends. One body, the State Water Corporation should be in charge of all WSD services in this state. User pays made up of service connection charge, and a \$/Kl usage charge.'

'The cost of using our toilet is 163.8% greater than the person across the street, and this is inequitable (Point Clare, NSW).'

'If a truly user pays system cannot be introduced then a hybrid system would be optimal where part of the bill goes to owner for service availability, and usage part of bill goes to tenant.'

'My overall cost for water is 6.4 times my neighbour's, though my usage was one seventh of his (because of property value system).'