

SUBMISSION TO THE ECONOMIC REGULATION AUTHORITY'S INQUIRY ON URBAN WATER AND WASTEWATER PRICING: DRAFT REPORT

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1. OVERVIEW

The authors of the Draft report on the Inquiry on Urban Water and Wastewater Pricing should be congratulated on providing Western Australians with a clear statement of the issues surrounding water pricing and its role in reconciling water supply and demand.

It is the first time in at least a quarter of a century that a serious attempt has been made to do this. The Government of Western Australia and the Western Australian Water Corporation should note how pricing can contribute to resolution of the current (and probably future) parlous balance of supply and demand in the south west of the State, particularly in Perth, and should adopt the report's recommendations.

Congratulations: after thirty years of involvement in water issues for me this is the first report that comes anywhere close to addressing the real issues.

The Draft Report draws attention to the large surplus of sustainable yield over current urban usage in the south west of Western Australia. Yet for at least 15 years the Water Corporation (and its predecessor the WA Water Authority) has lived off the hope that it could equilibrate the use of water with its availability while maintaining guaranteed revenue and dividend payments to government through a policy of (i) "demand management" (excluding getting the price right), buttressed by (ii) virtually perpetual restrictions and (iii) a heavy reliance on fixed charges. It is staggering that the Water Corporation does not even list supply reliability as a performance indicator! It ignores the economic fact that only when consumers are faced with economically efficient prices can one say whether the level of provision is appropriate.

It is my belief that this mind-set has led the Water Corporation to under-invest in:

- new source developments
- water recycling
- surface water catchment rehabilitation
- development of water trading arrangements
- involvement of the private sector

My only criticisms of the Draft Report are that (i) there should be more discussion of the meaning and implications of "low" price elasticity; and (ii) the logic of the report is not extended as far as it might be. The comments provided below expand on these two themes.

2. PRICE ELASTICITY OF DEMAND FOR WATER

Engineers and accountants have found it very difficult to comprehend the meaning of price elasticity estimates. They tend to treat the estimated price elasticity coefficient as a physical constant, rather than as an indicator of the effectiveness of the current tariff structure and price levels. They have therefore tended to take a “low” price elasticity estimate as indicating that price is not an effective demand management instrument. Economists’ use of the term “low price elasticity” to mean any value between -1.0 and zero has not helped. The Draft Report sometimes falls into the same error.

Empirical studies do suggest a “low” elasticity as defined in economics. In a study that probably still has some validity, Thomas and Syme (1988) estimated a water price elasticity of -0.21 for Perth. By comparison, Warner (1996), using income, price, restrictions, number of rain days, temperature, and soil moisture as explanatory variables estimated a price elasticity of demand for water in Sydney of -0.13 . The option of installing a domestic bore, available to consumers in Perth but not in Sydney, could account for a large part of the difference in the estimates reported for these two cities. But what does a “low” (or worse, “statistically insignificant”) value for price elasticity actually mean?

It should be remembered that “low” price elasticity does not mean that pricing is ineffective. For example, when Thomas and Syme (op cit) estimated price elasticity for Perth to be -0.21 the current price level was extremely low. So, assuming they were correct, a 10% increase on a very low price in the early 1980s would result in a 2.1% reduction in consumption. This is a *staggering* effect, not a *negligible* one. Similarly, it has been estimated that a 10% increase in water price in the Hunter was sufficient to induce a 4% reduction in water use (Thomas, 1999). As the Draft report points out, taken against long-term trends, the economic savings in terms of deferred capital investments are considerable.

Some time-series studies have even found that price was not significant at all. But this should *never* be taken to indicate that price is not a useful instrument for managing supply and demand. On the contrary, such a finding is more likely to indicate that the tariff structure and demand management policies have been entirely inappropriate! I analysed multi-variate data from the mid-1970s to the mid-1990s for Sydney, Hunter and Perth (Thomas J.F. 1999 p 53). In Sydney, precipitation and water use restrictions were significant, but price was not significant. In Perth the observed inter-annual variation in water use/household was statistically explained by variations in precipitation, restrictions and bore ownership, with price being insignificant. The results I obtained for Perth agreed with those of Draper (1994), who found that price variables constructed for the multi-part block tariff structure used in Perth were not statistically significant. These results reflect the fact that the cities examined did not have an effective pricing system for much of the long period analysed. The dominant influence of non-price variables such as rainfall, water conservation campaigns and water use restrictions meant that for many of the members of WSAA the 1990s were a period when the real price of water declined simultaneously with reductions in per capita consumption. I have often heard this quoted by leaders in the industry to indicate that pricing is not the answer to demand management. Nothing could be further from the truth.

In an effort to pre-empt such misconceptions I had already written a paper with Bill Martin, which was published in the peak international journal *Water Resources Research* (Martin and Thomas 1986). It received no serious consideration in Western Australia, yet water resource managers, while dismissing economics as “theory” continue to express surprise, shock and horror whenever serious imbalances between supply and demand occur. For the greater part of the thirty years that have elapsed since the drought of the mid 1970s the Water Corporation (or its predecessors) have relied on a policy of high levels of water use restrictions (90%: 10% according to the quoted design criteria for Perth, versus 50%: 50% or worse in practice), and exclusive emphasis on community “education” and consumer tolerance to bring about a balance of supply and demand. The result has been a critical failure of supply even relative to the suppressed levels of consumption that follow from a draconian restrictions policy.

3. SCOPE OF PRICING

3.1 Water vs Wastewater Pricing

It has long been an article of faith in Western Australia that water and wastewater pricing should be separated. This is equivalent to an airline passenger having to pay firstly for the right to board a flight, and then again for the right to land! Other water utilities in Australia are moving towards tariff structures that (i) recoup expenditures on wastewater services through water charges, and (ii) reduce the level of fixed rates, which are equivalent to a government tax. In this way the maximum price signal is given to consumers about the real cost of the services they consume. Brisbane provides one example (Thomas, Robinson and Mitchell, 2002).

Fundamentally, it is consumers, and *not* the Water Corporation, the Economic Regulation Authority or the WA Government, who should decide the appropriate level of supply and supply reliability, provided that consumers are presented with economically meaningful price signals. Currently the signals are virtually non-existent, because 80% of revenue for water and wastewater services comes from a tax in the form of access charges and sewerage rates, while the pay-for-use component is an insignificant part of household expenditure.

The Government of Western Australia and the Western Australian Water Corporation should therefore consider *all* options available for tackling the long-term crisis that faces Perth water demand and supply, (demographic, institutional, economic, social and technical), and should formulate a pricing structure that provides signals to all stakeholders, including potential new suppliers and water consumers.

3.2 Seasonal Prices

Nowhere in Australia has there been any attempt to fine-tune water prices to reduce peak demands especially in the driest months, through the application of seasonal tariffs. Instead, water utilities facing depleted storages have resorted to restrictions on water use during the dry months. However, if a year-round price is set in terms of the principles advocated in the Draft Report there should be no need for such variations in price through the year.

3.3 Targeting Specific Water Using Behaviours

The cost of items such as dual flush toilets, front-loading washing machines, rainwater tanks, and private bores is a significant disincentive for adoption. Observing this, the Water Corporation has offered substantial subsidies e.g. in Kalgoorlie or has imposed draconian restrictions on water use (as in Perth). However, this only serves to show that the overall approach to water pricing has been inappropriate.

4. PRICING FOR SUPPLY MANAGEMENT

The Economic Regulation Authority is correct to point out the significance of pricing to new investment decisions by the Water Corporation, and arguing that the selection of incremental source developments should be more firmly grounded in economic efficiency considerations.

However, the Authority could go a lot further than it has in this Draft Report to show that efficient water pricing by the Water Corporation would have major effects not only on the scope for substitution on the part of consumers, but also decisions by potential new entrants to the water supply industry. These could include:

- ❑ private sector water utilities providing BOO or BOOT schemes
- ❑ local governments and other public sector agencies e.g. cemetery boards seeking access to wastewater for treatment and re-use
- ❑ large disposers of wastewater, including industry, hospitals, universities.

5. REFERENCES

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