

FURTHER SUBMISSION REGARDING WATER TRADING

Dear Sirs

I wish to put to the Commission the following questions for consideration and response in your forthcoming report. They concern the special position of Canberra as the largest city in the Murray-Darling Basin.

If there is a scarcity of water due to environmental requirements -

1. Why should downstream water users not pay the ACT the same price as ACT users pay for the 96% of ACT water released to those downstream users? Should not the law of one price prevail (subject to wastage charges for losses en route downstream) if environmental objectives are to be achieved?
2. If urban-rural water trading is to be allowed, why should ACT users have to pay for water from irrigators when the ACT is giving 96% of its water free to downstream users? Is it normal in economics to pay to get back what you are giving away?
3. Why was it rational for ACT users to be deprived of their 455 kl pre-paid “free” water allowances, yet licensees downstream have their water licences elevated into property rights? By parity of reasoning should not ACT households have been given rights to their individual 455 kl allowance and been allowed to trade between themselves?
4. Why should the ACT water abstraction charge include a double charge for water based on alleged opportunity cost downstream plus the cost of restoring flows? Is that not a double environmental charge?
5. If dams were built and charged to ACT ratepayers and then are used to sustain “environmental flows” in drought (half the ACT dam storage was let out during the recent drought, which caused water restrictions and severe damage to urban environmental amenity), why should ACT water users not be compensated for their contribution to such environmental flows which would not have been possible without the dams they paid for?

Background

The ACT has Commonwealth-controlled waters and there is no Constitutional obligation for one drop to leave ACT control. Yet ACT users are now paying up to \$2.29 per kl, which is 30-40 times higher than downstream rice growers and 800-900 times more than Queensland cotton growers. A price computation spreadsheet is attached.

I also attach background papers from the ACT ICRC website and elsewhere.

Yours faithfully

Terence Dwyer

Cc Vicki Dunne, MLA

Independent Competition and Regulatory Commission
Eclipse House
London Circuit
Canberra City ACT 2601

Dear Sirs,

I believe that there can be no justification for a price increase of water supplied by the ACT government to citizens of the Territory when another source of revenue is available to the government. Indeed a decrease in charges is warranted.

The water manager, ACTEW, acknowledges that over 94% of ACT water is supplied without cost to NSW. It is used and paid for by irrigators and others in that State which means that the ACT government has for long been subsidising their operations. The cost of water charged to ACT residents far exceeds that charged to NSW irrigators whom we are subsidising.

Because ACT water is traded in NSW it is reasonable to expect that our government should seek recompense for the water supplied to these users. However, it has not elected to adopt this course of action.

Quite recently the ACT government announced that water is to be supplied under agreements with NSW. Why should we be expected to subsidize Yass or Goulburn and excuse the almost criminal neglect of water supply by the NSW Government?

If we are expected to supply water elsewhere then the recipients should be made to pay at the top water rate of \$1.78 plus 25 cents per kl, so long as we have to pay this excessive monopoly price.

Looking at the water problem more broadly, another major issue is the degradation of the urban environment in the ACT caused by unnecessary water rationing. The loss of thousands of trees and the damage to recreational areas is well known as is the deleterious effect on household gardens. Increasing rates, a tool previously used to reduce water consumption, will not help to restore our environment.

Finally, I note it is absurd that we should be expected to pay more to compensate ACTEW for profits lost due to the unnecessary water restrictions. That was dictated to ACTEW by the ACT Government – the ACT Treasury should be made to wear the consequences of government ideological folly.

Yours faithfully,



27 March 2006

Maxwell H Mills
B Com. AASA. MACS

Mail - PO Box 1524 Tuggeranong ACT 2901
.Residential - 23 Collocott Cresc. Oxley ACT 2903
Telephone - 02 62318624

Urban Water Policy: In Need of Economics

Terence Dwyer

The thesis of this article is that Australian urban water supply and pricing policies are not well grounded in rational economic thinking. It questions the policy consensus that water is necessarily so scarce in Australia as to require the sorts of penal charges, water restrictions and use regulations which are being imposed or being considered for imposition upon urban users. It also questions the policy consensus on vetoing new dams for urban water supply, a consensus from which Queensland is partly defecting. (Rural water use is a separate story, though it seems that policy failures there have been used to justify the punishment of urban water users.) This article does not question the function of the price system nor does it suggest capital for water infrastructure is a free good, but it does argue that the current 'water policy consensus' which involves deliberate non-augmentation of supply, discriminatory pricing, rationing and the creation and exploitation of monopoly rents by treasuries is hardly an economic optimum.

The thesis is illustrated by pointing out apparent logical problems with Australian Capital Territory (ACT) water supply and pricing policies. The ACT's policies are more or less paralleled by other jurisdictions and its urban water prices have been driven higher than most. It is therefore a representative example of an increasingly dominant policy consensus.

At the outset, one readily acknowledges that when a resource is genuinely scarce, rising prices do serve to ration demand. However, although Australia is a dry continent, it has a relatively small population and a wide variety of regional climates. Water is not necessarily scarce in North Queensland, for example, and a policy which forbids Cairns from building a second dam when six times the volume of the existing dam flows over its spillway in the wet season may be quite irrational. Few Australians live in areas with very low rainfall.

Basic Propositions

In making this critique of Australian urban water supply and pricing policy one may start with some basic and well-established propositions. One assumes that readers who are economists understand marginal cost pricing, sunk costs and external benefits to serviced land; and that they understand the difference between a true cost of supply and a monopoly rent. One also assumes that, like Böhm-Bawerk (1894-95; 1907-08), they understand the difference between 'capital' as a

Terence Dwyer is Visiting Fellow, Asia-Pacific School of Economics and Government, The Australian National University.

factor of production and ‘capitalised value’ representing the present worth of monopoly taxing power. In particular, one trusts readers are not so beguiled by the mysteries of accounting as to confuse ‘profitability’ with ‘economic efficiency’.

Readers will also understand how the optimality rule for marginal cost pricing and minimising deadweight loss in public utility pricing are parallel to the problem of deadweight losses of explicit sales or income taxes (for an overview of these issues from a practical perspective see Larkin and Dwyer, 1995). Economists understand that administered and arbitrary utility prices are really disguised taxes which impose similar deadweight losses on the community.

Proposition A: The environment is not an absolute value.

By this is meant that human activity is allowed to change the environment or even degrade it in some sense if it serves human interests. Were it otherwise, Sydney would be bush today, London would be a marshy swamp and Rome, seven hills. The point is that environmental costs must be quantified and set against environmental and other benefits. For example, it is absurd to count the costs of dams in stopping natural environmental flows if one does not count the benefit of dams in helping to sustain such environmental flows when there would have otherwise been no flow during a drought. Similarly, if one counts the lack of water flow at the Murray mouth as a cost, one has to balance this against having amenity in the city of Adelaide.

Proposition B: If there is no scarcity of water then short-run marginal cost pricing for water usage represents an economic optimum.

We assume here that capital has been invested to collect, store and deliver water and that, once done, available water supply exceeds demand. The only things to be paid for are (i) the current supply cost of water usage, and (ii) the fixed costs of water storage and supply infrastructure. This proposition that short-run marginal cost pricing (for water usage) is optimal can be traced back to Dupuit (see Hotelling, 1938) and is ably defended by Vickrey (1948). It involves the corollary that pricing water usage so as to recover sunk or fixed costs or to generate a rate of return on the replacement cost of immoveable assets is not economically efficient (on objections to marginal cost pricing and answers, see Coase, 1946 and Vickrey, 1948; 1987).

The only real objection to short-run marginal cost pricing is the financing problem. The objection is on the lines that: marginal cost is a useful concept and defines a lower price for producers facing a distressed market situation. If suppliers can find ways where sunk costs are paid by a lump sum, marginal cost also becomes a useful pricing approach. But to require it as a condition of investment or to impose it after firms have sunk their capital, means foregone investment and gradual impoverishment.

In other words, private sector suppliers have to recover sunk costs or they will not invest and for governments to use tax revenues to cover fixed costs of

infrastructure usually creates distortions elsewhere. But as Hotelling (1938) realised, financing infrastructure through land value rates or taxes does not involve deadweight losses (he was in error in thinking deadweight losses were minimal in relation to income taxes). In effect, short run marginal cost pricing for water usage combined with land value rating to cover fixed costs represents a non-distorting two-part tariff.

Proposition C: If water does have a scarcity value, then the price of that scarcity should be determined by competitive markets and all users should pay the same scarcity price as a resource rent (with any adjustments for transmission wastage). The 'law of one price' should prevail.

Here we assume that water demand exceeds supply. This means that in a river basin, urban users in the same basin as rural irrigators should be charged the same scarcity rent per kilolitre and vice versa. Further, if 30 per cent of water is lost in transmission downstream then a rural irrigator downstream should pay 30 per cent more than an urban or rural user water upstream. In other words, there is a natural comparative advantage to using water where it falls *ex caelis*, which should not be eroded by cross subsidisation through prescribing identical water abstraction charges.

Proposition D: Investment in water storage and reticulation infrastructure should be undertaken when social benefits exceed social costs.

Here again, we assume that water demand exceeds supply, given the *existing* storage and supply infrastructure *but that the storage and supply infrastructure can be augmented*. In deciding whether to augment, one should look at both public and private costs and benefits. For example, if one attaches a value to downstream or estuary fish habitats and a dam might adversely affect those habitats, the adverse effects have to be weighed against potential beneficial effects such as the dam supplying water downstream in a drought, and avoiding the cost to urban and rural users of a lack of water destroying or damaging parks, gardens, sports fields, crops, cattle *et cetera*. Whether such augmentation comes from new dams, from ground water or buying storage in existing dams elsewhere, are all supply options to be considered but one notes that 'water trading' cannot push water cheaply upriver or over mountains from a rural to an urban basin.

Proposition E: Land values reflect the value of access to infrastructure.

Land which is serviced by access to water supply will have a higher value even if no water is actually being drawn from the infrastructure. If water is available when you want it (at whatever the marginal cost of supply plus a scarcity rent, if applicable) then your block of land is more valuable than one without access. The recognition of this simple fact was the basis for the Australian system of rating 'unimproved' land values (that is, unimproved by the landholder as

opposed to society) which sought to recoup the cost of public works from the land benefited. Insofar as land value rating recoups external benefits conferred on land by infrastructure, it is not a tax nor does it result in deviations of per litre usage prices from optimal short run marginal cost. This may be contrasted with systems of infrastructure pricing which attempt to recover all fixed cost of infrastructure from 'user pays' water usage charges levied only on immediate users of what is carried over or through the infrastructure.

Proposition F: Land values also reflect environmental costs and benefits of human activity generally.

Environmental degradation lowers land values (for example, salination of pastures). By contrast, human efforts to conserve water and make it available for use may add value to lands. That is to say, there may be trade-offs. For example, is the increased value of cotton land upstream worth the degradation of pastures and estuary fishing areas downstream?

A Critique of Water Restrictions

We are now in a position to critique Australian urban water policy. The urban 'water policy consensus' which is emerging is to:

1. block construction of new dams (although the Queensland Government shows signs of abandoning the new political and economic 'correctness' on this point);
2. rely on detailed regulations and restrictions to limit and control of urban water use (for example, no sprinkling at certain hours and no hosing of hard surfaces or windows);
3. increase water prices generally;
4. impose discriminatory block pricing aimed at punishing 'large' household water users; and
5. use water utilities as treasury cash cows through dividends, thanks to the rising cash flows generated by 3 and 4.

None of these policies can be justified by orthodox economic reasoning.

The veto against new dams

This violates Propositions A and D. What is apparently going on is that there is an implicit acceptance by policymakers (or policy dictators?) that the environment would be catastrophically destroyed by new dams in all cases.

Perhaps some will argue that new dams are not available as a policy option because of negative environmental externalities. But this does not necessarily apply everywhere. Strangling Sydney does nothing to lessen Murray-Darling salinity problems. Claimed environmental costs should be spelled out in full cost-benefit studies in each case and weighed in alongside urban users' valuations of

their living amenities, parks and gardens. Where are the cost-benefit studies proving people prefer rivers go into the sea rather than water urban parks and gardens? And is it true that Canberra's use of water takes water out of the Murray-Darling when domestic water is recycled back into the river anyway? Economics is about the revealed preferences of human beings — environmental preferences are only part of those preferences.

A nice example of the peculiar modern tendency to place other species as an absolute value ahead of human beings was displayed when Environment ACT defended ACT 'environmental flows' (*The Canberra Times* 10 May 2005:9). The argument was that a few endangered fish needed water let out of ACT dams to survive as a species. While most would not wish to exterminate fish, the idea that a few native fish need more water than some 370,000 human beings in Canberra and Queanbeyan must surely rank as bizarre. Australia's native fresh water fish have evolved to survive the cycles of drought and flood, so why do they need artificial 'environmental flows' from dams to survive? Even if one disregards evolution, one must question how any rational cost-benefit analysis could justify a policy of providing 41 gegalitres (ACT Government, 2004:43) in so-called environmental flows for a few fish while limiting the use of 370,000 human beings to a net 17 gegalitres.

If someone thinks fish are more important than human beings he is entitled to that view, but other human beings are not bound to respect it as a moral absolute which must force them to die of thirst, no more than Western societies must accept the ideas that cows are sacred and not to be eaten. To put the perceived needs of a few fish ahead of the conservation of trees, ovals, parks and gardens seems merely an arbitrary exercise in placing the interests of one environment (the fish one) above another environment (the one inhabited by humans). Further, *if* there were a social consensus in favour of doing so, it would follow that the costs should be borne by all taxpayers, not off-loaded onto water users alone. Presumably the fish cannot pay for their share of the dams (without which there would be zero flow in a drought anyway). But if Environment ACT (as their human proxy) wants water for fish, its budgetary allocation should be charged with that cost and water users given a refund so that they can fund a new dam for human use.

A veto on augmentation of urban water storage is an irrational dogma if there is no attempt to weigh up the social and economic costs and benefits in each case (including weighing up competing environmental claims). A veto on dams may be due to ideology, pantheist views on Nature as Deity, political pressure groups or the vested financial interests of monopoly infrastructure 'owners' such as treasuries but a dogma it remains. An economist is duty bound to point out the implied social costs of such a dogma.

Taking the ACT as an example, if the social costs of cutting consumption by quantitative water restrictions are a recurring \$71 million per annum, then at a discount rate of 10 per cent, it would pay to spend up to \$710 million to build sufficient water storage infrastructure to enable abolition of the restrictions.

The costs of water restrictions in the most recent drought have been estimated by the ACT water corporation (*The Canberra Times*, 29 April 2005:1) at \$71

million and the cost of reducing consumption by a Government-mandated further 25 per cent to 2023 (it has already been cut by 20 per cent per capita since 1993-94 pricing changes) is estimated at \$323 million. As the cost of a new Tennant Dam is estimated at \$238 million (curiously increased from prior estimates) it makes sense, even on the official figures, to build the new dam.

We thus see, in the case of the ACT a violation of Proposition D. The admitted costs of reducing consumption and imposing water restrictions are greater than the cost of a new dam.

A refusal to build a new dam seems to depend on a denial of Proposition A, an implicit assumption that the environment is an absolute value and nothing further should be done by human hands to alter it. Unless someone can explain what are the negative costs of a new dam, and show they outweigh the costs of not building a new dam, then the violation of Proposition A stands.

When prices rise, they should do more than merely ration existing supply — they call forth new supplies. A rising water price tilts the cost-benefit ratio more and more in favour of investing in a new dam. Basic economics would dictate a new dam be built in response to shortages — unless someone can show that 100,000 water tanks and double plumbing are more cost effective (ACTEW Corporation, 2004a:10, Figure 3-2, shows even the most expensive dam option is cheaper than rainwater tank rebates).

Reliance on regulations and restrictions

Water restrictions necessarily violate Proposition C. They deny the legitimacy of markets in allocating resource use and claim superior economic wisdom for the policy or regulation maker. Rationing obscures, rather than reveals, preferences, just as petrol rationing did in the 1940s. Normally, economists denounce command economy measures to control consumption outside the price signal mechanism. It is therefore surprising there has not been universal condemnation by economists of proposals to regulate in minute detail what water users are allowed to do with the water they pay for.

For example, if you choose to wash down your patio with a hose because it does a better and cleaner job than sweeping (and runs off to water the lawn in the process), who is some officious State bureaucrat to second guess your economic judgment? If you consider that watering your garden for a good soaking 8 hours every week is better than watering it for 3 hours every second night, why should you be fined? You may actually even be using less water *in toto*!

Water restrictions, like other forms of rationing, are an inherently second-best method of dealing with shortages of supply.

Increasing water prices generally to reflect 'scarcity'

Perhaps the most intuitively appealing argument for water restrictions has been the dogma that water is 'scarce'.

But water is not necessarily scarce — contrast rainfall in Cairns with Adelaide (and even Adelaide can draw water from the Murray). Yet some

economists insist water has a scarcity value which must be paid. Fine, then where are the competitive markets to establish true scarcity prices? How else can one say water is necessarily scarce? Or is water supply being constrained by governments blocking the construction of long planned dams? (For an overview of the interaction between environmental flows and supply needs in the ACT, see McIntyre *et al*, 2003.) How can anyone talk about scarcity prices without examining the causes of scarcity? Does ‘scarcity’ mean OPEC should charge \$100 or \$200 per barrel of oil? All prices reflect scarcity but are also held in check in a free market by the costs of new supply, so how can the reality of water supply issues be ignored?

If embargos were imposed on power stations, there would be rising scarcity prices for electricity. But no serious economist would accept these were genuine scarcity rents. Economists would quantify the economic costs of distorting markets and forcing business and households to buy their own generators or use candles instead of light globes.

Saying urban water is ‘scarce’ is like saying that office rental space in Sydney would be ‘scarce’ if building codes vetoed any building over one storey high. Like office space, the abundance of ‘water’ as a delivered commodity depends on supply as well as demand — as much on capital investment as natural availability of dam sites or aquifers. Office rents per square metre can fall with new supply even as ground rents and land prices rise. If political correctness or environmental dogma says dams are an inherent evil and should not be built, water may indeed become ‘scarce’ and rationed or expensive. But, in a free market, as the price of office space or delivered water rises, new buildings are erected or old ones refurbished and new water storages are built or water recycled. Both new storage construction and recycling are natural economic responses to scarcity — neither is ‘right’ or ‘wrong’: it all depends on the cost-benefit figures for each response in each case.

When it comes to explicit scarcity pricing for water, the ACT has, in fact, purported to impose such a ‘scarcity price’ (see Independent Competition and Regulatory Commission, 2003a; 2003b; and 2003c). It is embedded in the ‘water abstraction charge’ (WAC) on water taken from rivers or dam storages.

But is urban water necessarily scarce? While one must agree that water is scarce for irrigators drawing water from over-allocated rivers in the Murray-Darling Basin, it does not follow that water is scarce everywhere. Coastal cities storing water which would otherwise flow unused into the sea might question what is meant by scarcity.

Taking the example of the ACT, the most basic criticism of the WAC is that water is not scarce in the ACT. The ACT water utility, ACTEW, states that the ACT has enough water for a million people, after meeting environmental requirements, and is only using (after recycling) about one-sixth of the amount of water available for human use. ACTEW states that some 94 per cent of ACT water goes downstream free of charge to New South Wales, which sells much of it for irrigation use. Even after allowing for mandated ‘environmental flows’ (which

claim over half of the ACT's water) gross usage in the ACT is only one-third of the water available for human use (ACTEW Corporation, 2004a).

The criticism here is not that genuine water scarcity might lead to water price increases. The criticism is that water prices increases are being allowed to be dictated solely by so-called 'demand management' imperatives where there is no genuine economic scarcity. Prices are not rising in a way which is consistent with a free market. They are being set arbitrarily by governments and regulators. In a free market, prices are allowed to respond to scarcity, both to reduce lower-valued usage and to draw forth new investment in water storage or recycling infrastructure.

So-called 'demand management' strategies are a euphemism for rationing. It is true that prices should rise when water becomes scarce but that is only the start of the economic story of demand calling forth supply and new equilibrium.

Adopting discriminatory block pricing to punish large household users

The intellectual dishonesty of appeals to water price increase as being justified by increasing scarcity becomes apparent when we examine the precise structure of price increases in urban areas. They are often notably non-uniform. For example, in an unsurprisingly titled media release, the ACT's Independent Competition and Regulatory Commission (ICRC, 2005) has announced its approval of discriminatory increases in water prices from 1 July 2005. The fixed annual (access) charge drops from \$125 to \$75. Consumers pay 58 cents per kilolitre (kl) for the first 100 kls (previously 51.5 cents); \$1.135 per kl for the next 200 kls (previously \$1); and \$1.53 per kl for annual consumption over 300 kls (previously \$1.35). These charges are separate from the ACT Government's water abstraction charge (which is supposed to represent the scarcity value of water as a resource and is also increased from 20 to 25 cents per kl from 1 July 2005).

Now an economist should ask some basic questions.

- Aren't fixed charges preferable as 'lump sum taxes' to excises on output when one is looking at excess burdens of taxation? Wouldn't even second-best Ramsey pricing dictate that the fixed charge should be as high as possible to minimise the 'access deficit' or that there be declining, not rising, block tariffs, as used to occur with gas pricing? (Berg, 1998). In fact, the ideal two part tariff charge is an access price based on a 'lump sum' rating of the value of the serviced land, as used to be the case in Australia, plus a uniform charge solely representing marginal cost, which would include a uniform scarcity rent (if there is real scarcity).
- If we are increasing prices on large users because of scarcity and the supposed 'need' to reduce consumption, why is that not reflected in the water abstraction charge for *all* users rather than in the tariff which generates a return on capital and recurrent costs for the utility which provides infrastructure? Is it really socially costlier to supply 10 large families consuming 500 kls each than 50 smaller households consuming 100 kls each?

One might have thought economies of scale operated in infrastructure supply — installing, maintaining and reading 10 connections is surely cheaper than for 50. And what about economies in consumption? A household of 6 people may use less water per capita than 6 households of one person.

- If the justification for price increases is that water is scarce (as ICRC appears to argue), then why aren't all users to be charged the same price per kilolitre for all amounts used. Is marginal water used by a small high-income household less precious or scarce than water used by a large struggling family?
- Why should ACT households pay up to \$1.53 plus a tax of 25 cents per kl when ACT water is being sent downstream free of charge to irrigators paying far less? It is curious environmental policy to turn a garden city into a desert so that rice can be grown downstream in a desert. In a free market the law of one price would prevail. Only monopolists can sell the same product at different prices to different buyers.

Thus discriminatory block pricing violates Proposition C. It also violates Proposition B, as the scarcity value of water should enter as a uniform marginal cost.

Using water utilities as cash cows

When confronted with the new (and heretical) public finance fashion that all public services should be provided on the basis of 'user pays', most consumers, in their naiveté, assume that 'user pays' means:

- that they are charged the cost of what is supplied; and
- that they will get what they have paid for.

The use of utilities as cash cows defeats these humble expectations. What has been blessed (by ignorance or wilful negligence or treasury subornation on the part of pricing regulators) is multiple charging for public works.

Once upon a time, dams were constructed and financed by the perfectly sensible system of rating land values to amortise Water Board loans incurred to service the land. Land developers often had to contribute infrastructure free of charge to the water authorities. It made, and still makes, economic sense for the fixed costs of network infrastructure to be charged against the land values being benefited. Then the flow of water through the system can be charged at its low marginal cost, ensuring optimal use.

Thus, suppose a town was built over 90 years and dams and water works and pipes were financed by levies on ratepayers. A normal person, and a genuinely rational economist, might think that these capital works had been paid for and therefore should not be charged for again.

Yet 'reform' has meant water users are being asked to pay again for costs already recovered or never borne by State Treasuries. To take just one example,

the Queensland Government has sought to charge a rate of return on the Burdekin Dam which was paid for by the Federal taxpayer. As Professor Bob Walker (1993) noted some years ago, there are not many businesses where you can get your assets given to you by taxpayers or consumers and then turn around and demand a return on money you never had to outlay.

The conventional wisdom underlying the Council of Australian Governments and National Competition Policy water reforms is:

- (i) Water authorities in Australia were unprofitable and delivered a low return on the 'investment' governments had made in them.
- (ii) Hence, they should be made to deliver a rate of return to their government 'owners' equal to the rate of return on private sector equity investments.

Those assertions, constantly repeated, have assumed the status of urban legend, if not the status of self-evident truths. Both assertions are wrong.

Leaving aside whether water schemes were undertaken as 'investments' or were created as public utilities for public benefit, as Walker and Walker (2000) and Walker (1993) have pointed out, public sector accounting for water authorities has often employed techniques which result in misleading figures showing low profitability when the reality is that water authorities have been more profitable than most listed industrial companies.

Walker and Walker (2000:87-88) point out that

many of those GTEs [government trading enterprises] were highly profitable by private sector standards, but had only *reported* low levels of profitability. This occurred because Australian GTEs were required to adopt radical methods of accounting — methods not used anywhere else in the world ... there are some important differences in the way private sector and public sector entities value their assets. It is not widely recognised that since the late 1980s, Australian GTEs have used a system of accounting which is radically different from that used in private sector accounting. This has produced radically different financial results. (emphasis in original)

Walker and Walker (p. 97) go on to observe that

the major omission [of the Steering Committee *Guidelines on accounting policy for valuation of assets of Government Trading Enterprises*] was a failure to recognise that recent advocacy of the use of current replacement prices was that for consistency, the amounts by which asset values were increased should be brought to account in the operating statement as revenues (or unrealised gains). Adoption of this model of 'clean surplus' accounting would have meant that poor rates of return would have been converted into good rates of return. As it happened, the end result of the Working Party's ill-informed activities was that Australian GTEs were told to adopt a system of accounting

which produces figures for 'profit' and 'rate of return' which differ substantially from the figures which would be produced by private sector firms using private sector accounting methods. ... The Steering Committee had set out to ensure that the accounting methods used by GTEs would enable comparisons to be made between the government-owned businesses and 'comparable' private sector firms. They ended up promoting a system that ensured exactly the opposite'

It was also forgotten that (Walker and Walker, 2000:104-05):

A significant proportion of the assets of water authorities has been acquired through compulsory 'donations' from property developers. ... From an accounting perspective, the receipt of these 'donations' meant that water authorities had to record an increase in their assets — but most authorities recorded the receipt of these assets as an increase in 'reserves' rather than a source of revenues — the treatment indicated by the accounting profession's statements of accounting concepts. Having recorded increases in assets, water authorities then wrote-off those assets through depreciation charges (which were treated as expenses, and hence reduced reported profits). The combination of these treatments meant that the more donated assets received by those GTEs, the lower their reported profits.

The net result is that, after adjusting for revaluations and placing accounts on a common historic cost basis 'water authorities were far more profitable than listed industrial companies.' (Walker and Walker 2000:106). Yet, increasingly, a mantra of the need for 'forward-looking' prices is invoked to justify charging consumers on the basis of what it would cost to replace these assets in their current state. Hence consumers should be charged on the basis of 'depreciated optimised replacement cost' (DORC). (For other critiques of DORC, see Johnstone and Gaffkin, 1996; Johnstone and Wells, 1998; King, 1996.)

DORC may lack economic merit but it has wonderful features for infrastructure owners, such as State and Territory treasuries. One can blithely ignore the past history of who financed and contributed to public works and proceed to write up their value and claim a required rate of return on the capitalised value. To reap where he never sowed is the dream of every landlord, as Adam Smith observed. To charge for use of an asset you never paid for must rank alongside it as the dream of treasury officials and infrastructure monopolists.

The effect of such artificial and contrived accounting is to enable water utilities to generate astounding cash surpluses on cash actually invested while showing apparently low rates of return (which are used to justify claims for ever-higher prices). The net effect is the State and Territory treasuries can look forward to higher 'dividends' and pretend that this is 'user pays' financing 'reform' rather than the elaborate monopoly tax farming which it really is.

Worse still, unlike normal competitive industries, none of the new-found 'profitability' of water authorities is leading to a rush of new investment in much-

needed water storage infrastructure. Quite the contrary, State governments are trying to find reasons for forcing a massive and uneconomic duplication of water infrastructure, as each home has to fund its own mini-reservoir. (It may be socially more efficient to build a new dam and save the community the potential health and financial costs of millions of tanks, but high private costs are not borne by State Budgets.)

If none of the excess profits are ever ploughed back into additional infrastructure, of course water prices must rise towards infinity. But this is the result of State government policy. It should not be blamed on Nature — *'Accuse not Nature, she hath done her part; Do thou but thine'* (Milton, *Paradise Lost* VIII:561).

Conclusion

There is no economic justification for spurious water pricing 'reforms' which strip excess profits from urban users, block increased supply, discriminate arbitrarily and push up business and living costs in the process.

Urban water pricing in the ACT and other places is not being determined by genuine economics. It is a form of thinly-disguised excise taxation enforced by a blockade of new supplies. Urban water pricing reflects abuse of monopoly power and lucrative monopoly rents, rather than true resource scarcity rents. It is as trivially beside the point to say that urban water pricing should reflect scarcity as to say the price of bread in Berlin in 1918 reflected scarcity rather than the Allied blockade.

The real hidden issues in the new urban water 'political correctness' are the blockade of new supply and arbitrary rationing of existing supply. Those willing to defend this situation are at odds with orthodox economics. While one can understand the revenue desires of treasuries, the self-interest of would-be private water infrastructure owners, the ideology of environmental Puritanism and the love of politicians for redistributing income, none of these amount to a valid *economic* consideration in pricing urban water. Urban water supply and prices should not be set by an Australian 'water OPEC' of State governments acting like the monopolists justly despised by Adam Smith (1776-1784) when he wrote:

The monopolists, by keeping the market constantly under-stocked, by never fully supplying the effectual demand, sell their commodities much above the natural price, and raise their emoluments, whether they consist in wages or profit, greatly above their natural rate.

References

ACT Government (2004), 'Think Water, Act Water', Vol 1, Draft Strategy for Sustainable Water Management in the ACT, Environment ACT, Canberra.

ACTEW Corporation (2004a), 'An Assessment of the Need to Increase the ACT's Water Storage', Canberra.

Berg, S. (1998), 'The Basics of Rate Design — Pricing Principles and Self Selecting Two-part Tariffs,' pp. 74-90 in Australian Competition and Consumer Commission (ed.) 'Infrastructure Regulation and Market Reform: Principles and Practice', Selected papers prepared for the Utility Regulation Training Program held by the Australian Competition and Consumer Commission, Melbourne, November 1997 and the Public Utility Research Centre, University of Florida, May 1998.

Böhm-Bawerk von, E. (1894-95), 'The Positive Theory of Capital and Its Critics: Part I,' *Quarterly Journal of Economics* 9:113-31.

Böhm-Bawerk von, E. (1907-08), 'The Nature of Capital: A Rejoinder', *Quarterly Journal of Economics* 22:28-47.

Coase, R (1946), 'The Marginal Cost Controversy' *Economica* (n.s.) 13:169-82.

Engineers Australia (2004), 'Engineers Debunk the Water Myths', Canberra.

Hotelling, H. (1938), 'The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates', *Econometrica* 6:242-69.

Independent Competition and Regulatory Commission (2003a), 'Draft Report — Water Abstraction Charge', Canberra.

Independent Competition and Regulatory Commission (2003b), 'Final Report — Water Abstraction Charge', Canberra.

Independent Competition and Regulatory Commission (2003c), 'Issues Paper — Water Abstraction Charge', Canberra.

Independent Competition and Regulatory Commission (2005), 'Regulator Approves New ACT Water Price Increases', Media statement, Canberra.

Johnstone, D. and M. Gaffkin (1996), 'Review of the Asset Valuation Guidelines of the Steering Committee on the National Performance Monitoring of GTEs', *Australian Accounting Review* 6(1):50-65.

Johnstone, D. and M. Wells (1998), 'Utility Asset Valuation and the Problem with DORC' unpublished paper.

King, S. (1996), 'Asset Valuation and Access to Essential Facilities under Part IIIA of the Trade Practices Act 1974 (Cth)', pp. 94-116 in Megan Richardson (ed.), *Deregulation of Public Utilities: Current Issues and Perspectives*, Centre for Corporate Law and Securities Regulation, Faculty of Law, University of Melbourne.

Larkin, J. and T. Dwyer (1995), *Refocusing Microeconomic Reform*, Business Council of Australia, Melbourne.

McIntyre, R., R. Goldfinch, K. Johnson, and F. Speldewinde (2003), 'Augmentation of Water Supply to the ACT and Region', Report for Engineers Australia, Canberra, unpublished.

Smith, Adam (1776-1784), *An Inquiry into the Nature and Causes of the Wealth of Nations*.

Vickrey, W. (1948), 'Some Objections to Marginal-Cost Pricing', *Journal of Political Economy* 56:218-38.

Vickrey, W. (1987), 'Marginal- and Average-Cost Pricing' in *The New Palgrave*, Eatwell *et al* (eds), Vol. III, Macmillan, reprinted in William Vickrey, *Public Economics*, edited by R. Arnott, K. Arrow, A. Atkinson and J Drèze, Cambridge University Press, 1994.

Walker, R. and B. Walker (2000), *Privatisation: Sell Off or Sell Out? — The Australian Experience*, ABC Books, Sydney.

Walker, R. (1993) 'Evaluating the Financial Performance of Australian Water Authorities', pp 185-211 in M. Johnson and S. Rix (eds), *Water in Australia: Managing Economic, Environmental and Community Reform*, Pluto Press and University of New South Wales, Sydney.

The author acknowledges the help of Ross McLeod who thought the subject worthwhile as well as the comments of two anonymous referees who, without necessarily agreeing with the paper, felt some points were obvious. I hope they are correct and urban water policy undergoes a rethink. A fuller annotated copy of the paper is available on request from the author.

A.C.T. WATER ABSTRACTION CHARGE

The question has been raised whether the ACT Water Abstraction Charge (WAC) is a fee for service or a tax. If it is a tax, it is an invalid tax because it would be an excise tax which the ACT Legislative Assembly is prohibited from levying under section 90 of the Commonwealth Constitution.

The official explanation is that the water abstraction charge (WAC) is a fee for service, merely compensating the ACT government for costs incurred in managing the catchment which are not borne by ACTEW (that is, their customers) and costs which represent the scarcity cost of water.

Notwithstanding the best efforts of ICRC to justify *ex post facto* that the ACT government's budgetary decisions to lift the water abstraction charge from 10 cents per kilolitre to 20 cents per kilolitre and then 25 cents per kilolitre, the reasoning used to justify the charge does not appear to stack up.

Components of the water abstraction charge

First, ICRC itself thought that a water abstraction charge of 17.7 cents per kilolitre could be justified. (ICRC Final Report p14) Only later, when the some catchment bushfire remediation work was added, did ICRC suggest a charge of 22 to 23 cents per kilolitre could be justified, still short of 25 cents.

The WAC is made of -

Water supply costs	8.2 cents per kL
Flow costs	
Scarcity value	4.4 cents per kL
Environmental costs	5.1 cents per kL
Total costs	17.7 cents per kL

Water supply costs

8.2 cents represents direct "water supply costs" allegedly borne by the ACT government. These are (FR p 12 Table 3.1) -

Table 3.1 Government water supply expenditures

Parks and conservation	\$1.5m
Wildlife research and monitoring	\$0.3m
Environment protection	\$2.2m
Canberra urban parks and places	\$0.3m

Treasury	\$0.4m
Health	\$0.2m
Chief Minister's	\$0.2m
Justice and community safety	\$0.2m

Total **\$5.3m**

Source: Environment ACT, Department of Urban Services submission.

The source submissions were not published (commercial in confidence!?) and it is therefore impossible to check the reasonableness of these allocations. Most of these costs appear not to relate to services particularly for water users but to general functions of government. For example, why should water users be paying \$400,000 worth of Treasury salaries? Why should water users be funding general environment studies more properly attributable to national park users? Why should water users be funding education campaigns or general bushfire prevention? And if users are paying for services such as bushfire prevention does that mean they can sue for negligence in the performance of that service, as the ACT Government is providing the service on a commercial basis rather than as a general government function?

Further, why should ACT water users be charged *all* the costs of catchment management etc when most of the water in the dams has been allocated to environmental flows rather than kept for the uses of the ACT leaseholders who financed the water storages? (269 GL of 494 GL - 54% -of ACT controlled water resources are dedicated to environmental flows, while gross ACT water use is 65 GL - 13% , see *Think Water, Act Water* Vol 1, p 13). The 8.2 cents of direct water “supply costs” needs to be apportioned between ACT water users and environmental flows.

Flow costs - scarcity value

4.4 cents represents the opportunity cost of water for downstream irrigation based on temporary trading entitlements along the Murrumbidgee River.

Several objections may be made.

1. The reasoning is perverse and economically irrational. A resource should be allocated to its highest bidders (which is what the COAG water agreements are supposed to require!) The ACT government does not charge downstream users a single cent for water flowing from ACT dams to downstream users. It cannot claim *any* opportunity cost caused by ACT users. Quite the contrary, every kilolitre *not* used and paid for by ACT consumers generates *no* revenue for ACTEW or the ACT government.

Indeed, using the concept of opportunity cost correctly means that the flow cost is negative. Water can be sold in the ACT for marginal revenue of \$1.05 but is being sent free down the river to be used by people who only value it at 4.4 cents per kilolitre. If we follow this logic, the opportunity cost is a *negative \$1.006 per kilolitre*.

In truth, the concept of opportunity cost is wrong here. If I sell a Mars bar to X for \$1.05 when Y will pay me 4 cents for it, I cannot say X should pay me another 4 cents because that is the “scarcity value” of the Mars bar. X will rightly retort that he is happy to pay only 4 cents for the Mars bar instead of \$1.05.

2. The concept of opportunity cost is misplaced in any case. Irrigators downstream pay to acquire temporary or permanent rights to water they do not already own. The ACT already has *permanent* water rights over its own rivers and rights over Queanbeyan River in New South Wales through the Googong Dam agreement. Why would anyone charge themselves for what they already own? There is no need for the ACT Government to charge ACT water users to acquire water rights since the ACT *does not have to meet this cost—the ACT already has a permanent entitlement* over its own rivers and Googong Dam.

Flow costs - environmental costs

5.1 cents is alleged to represent the annualised cost of a permanent diversion of a kilolitre flow from the Murray Darling River system (that is, what it would cost to put the water back). The implicit assumption is that no water should ever be taken from a river and not returned. Another possible implicit assumption (apparently held by ICRC, though contradictory to the basis of Mr Kirk’s legal advice) is that the water does *not* belong to the ACT but the ACT must let it flow on downstream, either as a matter of comity or by virtue of paramount Commonwealth-State legislation and agreements (ie has the ACT ceded sovereignty to the Murray-Darling Basin and will the ACT have to buy back the water it once owned?). If the ACT does own the water, then there does seem to be double counting.

Several objections may be made.

- 1 The statement that “Because the cost of purchasing water entitlements to augment river flows is a capital cost associated with a permanent improvement in flows, calculating the environmental cost component of the WAC involves calculating a return on this capital cost.” (FR p13) is quite strange. It seems to mean the owner of a natural resource should pay to put it *all back on principle*, even where he is quite satisfied that he has done enough to preserve the environmental flows and even where *any* use necessarily means some water will not go back to the environment in the same way, as part of a river (though no water is ever really lost to the ecosystem and the ACT already returns most of its used water back to the river).
2. The ACT is under no legal obligation as a sovereign body politic to return every drop of water back to the river system. Indeed it would be impossible to do so with any form of human habitation in this country. There is a bizarre assumption behind this notional charge that somehow the river system owns itself and should itself be paid *in addition* to any payment made to an owner of the water rights.

3. The ACT is given no credit for the environmental flows from the dams which ACT water users have paid for - they are being double charged, once it is realised that they have paid for the dams which sustain the environmental flows.
4. This is really an attempt to justify an additional notional, or “conjured up and hypothetical” scarcity cost. If ACT water users are already being charged a “scarcity value” as against water in irrigation uses, then they have already notionally outbid the water away from irrigation uses. Water used by ACT consumers therefore does not represent an additional net claim on the river flow - downstream irrigation uses should have been reduced as they have been outbid. This part of the charge is therefore represents a double counting.

Legal issues

It is interesting that in the three legal opinions obtained by ICRC from Mr Kirk of counsel, he repeatedly cautions about the need for the charge to bear a relation to “costs” incurred in servicing water users or related to the “value” of what is acquired. He makes it perfectly clear that to be justifiable as a user charge, the water abstraction charge must relate to the costs of the provision of the service. He also cautions that if the fee moves too far from reasonable costs and is based on a scarcity value created in a noncompetitive market by government natural monopoly, then the water abstraction charge may be seen as a tax.

In relation to the “costs” question, we note that *at most* an apportioned fraction of 8.2 cents of real, actual, cash outlays per kilolitre might be perhaps be justifiable. The scarcity and environments “costs” are based on highly dubious reasoning on notional costs. We also note that Mr Kirk never addresses the question of why ACT water users should be charged for *all* the costs of water catchment management when most of the storage is allocated to downstream users as environmental flows.

In relation to the “value” question, we note that ACT water users would be delighted to pay 4.4 cents per kilolitre as the “scarcity value” for any amount of extra water (given that they have already borne all ACTEW storage and reticulation costs). 4.4 cents is a lot less than 25 cents or \$1.05!

In several cases Mr Kirk appears to be providing advice on the basis of assumptions which are not correct. He seems unaware that downstream water users are charged nothing for ACT water and unaware that the water abstraction charge is therefore arbitrary in the sense that ACT users are charged but downstream users are not.

He also assumes that the ACT owns all the water subject to the water abstraction charge and can therefore operate on the basis it is selling water it owns. He does not consider the WAC on reused water (as in the Murrumbidgee Golf Club case) nor does he consider the WAC in relation to its application to New South Wales water held in the Googong Dam and supplied by ACTEW to Queanbeyan residents in New South Wales. No examination is undertaken of the implications of the Googong Dam agreement between the Commonwealth and New South Wales in relation to the supply of New South Wales residents with NSW water.

When account is taken of the extensive qualifications in Mr Kirk's legal advice and the factual scenario set out above together with the fact that the water abstraction charge was raised to 20 and later will go to 25 cents as a budgetary measure without any prior public investigation or disclosure of costs, it is hard to resist the conclusion that the charge is a tax - and therefore an unlawful excise tax.

WATER CHARGES

(insert amount)

Amount consumed **455**

	1990-91	2006-07		
Fixed charge	\$200.00		\$75.00	
Sewerage	\$200.00		\$398.80	
Consumption charge				
first 455	\$0.00			
over 455	\$0.47			
to 100 kl		\$0.66	\$66.00	
100-300 kl		\$1.29	\$324.00	
over 300 kl		\$1.74		
Water abstraction charge		\$0.25	\$113.75	
2006 Budget water fee		\$0.30	\$136.50	0.168338
Consumption charge	\$0.00		\$593.70	
TOTAL CHARGES	\$400.00		\$1,317.75	0.200573
PERCENTAGE INCREASE 1990-91 to 2006-07		229%		763.3333

Comparison with irrigators downstream

	<i>Permanent high security</i>		Annual equivalent charge
Irrigator cost	per ML	per kl	per kl
	\$1,500.00	\$1.50	\$0.08

TOTAL COMPARABLE CHARGE **\$34.13**

as % of ACT consumer bill
2.59%
ACT consumers pay times more
38.6

Comparison with Qld cotton irrigators

	per ML	per kl	Annual equivalent charge per kl
	\$3.00	\$0.003	\$0.003

TOTAL COMPARABLE CHARGE **\$1.37**

as % of ACT consumer bill

0.10%

ACT consumers pay times more

965.4

NOTE: These comparisons include wastewater charge