

**Submission to
QUEENSLAND COMPETITION AUTHORITY
on
PRINCIPLES RELEVANT TO
RECOVERING LONG-RUN AVERAGE COSTS OF SUNWATER SCHEMES
with particular reference to
THE COST OF CAPITAL FOR DEVELOPMENT, BETTERMENT AND REPLACEMENT
OF FACILITIES AND EQUIPMENT REPLACEMENT**

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Summary

This submission proposes that the 'cost centre' is the preferred business model for a water utility. The implications of this business model for the recovery of long run average costs are outlined. A worked example is used to demonstrate the approach for capital works and equipment replacement.

Institutional Structure

In considering water pricing, the first question is whether Sunwater is to be viewed as a profit centre or a cost centre.

The presence of significant externalities, associated with water impoundment, diversion, reticulation and delivery, bring into question the validity of applying the profit centre concept to the determination of structure and the development of strategy for water utilities. The application of the profit centre concept to a business entity assumes that its capture of economic value added is in the general community interest. To apply such a policy, to a business entity with significant externalities, such as a water utility, can be questioned on the grounds of efficiency, equity and environmental sustainability as well as the effect on economic growth.

Accordingly, the cost centre appears to be the preferred business model.

General Implications of the Cost Centre Business Model

The water tariff structure and other sources of revenue must recover the efficient long run average cost of a water utility in a manner which is equitable to water users supplied by the utility, as well as other persons directly or indirectly benefited or impacted by its operations.

The catchment is the logical basis for the analysis and assessment of costs of water management and supply as well as the direct and indirect benefits and impacts on persons other than water users.

Operational Cost Recovery and Funding of Working Capital

Operational costs are those costs which expire within the annual operating cycle of 12 months. Within this classification, if those costs directly related to delivered volume are recovered on this basis, business risk is from variation in water demand is minimised. Other operational costs may be recovered on the basis of water entitlement. Equity between water users can be maintained if reliability of supply is included in the formula. If a proportion of other operational costs relate to factors external to the delivery of water supply to water users, to maintain equity, these costs should be recovered from subvention.

The working capital required for the efficient funding of operational costs should be provided from overdraft or commercial bill facilities. This interest cost is to be included in operational costs and recovered accordingly.

Funding and Recovery of the Cost of Environmental Control

Costs of environmental control may expire within the annual operating cycle of 12 months or relate to facilities which have a service life beyond one year. In the former case, the principles of operational cost recovery and funding of working capital should be applied. In the latter case, these costs should be treated in the same way as costs of development, betterment or replacement of facilities.

Funding and Recovery of the Cost of Development, Betterment and Replacement of Facilities and Equipment Replacement

The cost of any facility or equipment, with a service life of more than one year, expires over its service life. Accordingly, an asset is created, which decreases in value over the service life of the item. To provide cash to establish the facility or purchase the equipment, a liability, to be repaid over the service life of the item, may be created.

The cost of the capital needed to provide the item is the cost of interest on the loan and the amortisation of the principal over the term of the loan. This may be illustrated by applying the concept of a 'credit foncier'

loan, commonly used in modern banking. Such a loan is for a fixed period, with regular equal repayments of both interest and principal, so that at the end of the term, the loan is completely repaid. The periodic repayments can be recovered from water users, through annual charges, based upon entitlement. Where the assessed benefit of the item is enjoyed by persons, other than water users, arrangements are needed for subvention, provided to the water utility, by or on behalf of those persons.

Table 1 illustrates the cost of funding and the recovery of capital costs for a capital works and equipment replacement programme totalling \$M115.75 in a catchment with an initial installed annual yield of 100,000ML. Of the total annual repayment of \$M10.74, \$M9.55 is recovered from water users, through per megalitre charges based on entitlement and \$M1.19 is recovered from subvention.

The programme provides for capacity expansion to a total annual yield of 180,000ML, at a cost of \$1250/ML of additional annual yield. It has been assessed that 8,000ML of the additional annual yield is required to make good historical over-allocation to existing water users, leaving 72,000ML to be allocated to new water users. Of the total capital cost of \$M100.0 for capacity expansion, \$M10.0 relates to flood mitigation and other community amenity. Capacity expansion has been funded by a loan of \$M100.0 at an interest rate of 9.0% over 50 years, with an annual repayment of \$M9.12. This repayment amount is funded by an annual charge of \$102.63/ML to new water users, \$7.60/ML to existing water users and \$M0.91 from subvention. Water users may also be offered the option of making a capital contribution of \$1,125 per ML of entitlement (90% of \$1,250) at the time of the initial commitment for the expansion.

\$M10.0 is provided for replacement/betterment of existing facilities. This has been funded by a loan at an interest rate of 8.5% over 25 years, with an annual repayment of \$M0.98. This is funded by an annual charge of \$9.05/ML to existing water users.

Of the \$M5.0, provided for environmental control, 50% is attributable to all water users and 50% is attributable to the maintenance of environmental flow and general environmental factors. This has been funded by a loan at an interest rate of 8.5% over 25 years, with an annual repayment of \$M0.49. Accordingly, one half of the repayment is recovered from all water users with an annual charge of \$1.36/ML and the other half, \$M0.24, from subvention.

Equipment replacement, totalling \$M0.75, has been split 80/20 between all water users and community facilities. The amount is for equipment with two service lives and has therefore been funded by two loans, one with an interest rate of 7.5% over 7.5 years and the other at 7.0% over 5 years. The total annual repayment of \$M0.15 is recovered from all water users with an annual charge of \$0.68/ML and \$30,601 from subvention.

Total capital recovery charges for existing water users are \$18.69 per ML of entitlement and for new users are \$104.67 per ML of entitlement. Total annual subvention provided to the water utility amounts to \$M1.19.

Table 2 shows examples of credit foncier loan options for various loan amounts, interest rates and terms. The options selected for the programme in Table 1 have been highlighted.

The credit foncier loan is not the only debt instrument for lenders. The approach may be applied to other forms of long-term debt financing.

Table 1. Illustration of Cost of Funding and Recovery of Capital Costs

			'000ML			
	Base annual yield			100		
	Capacity expansion (yield per annum)			80		
	Total Annual Yield:			180		
Capital Works & Equipment Programme						
	Annual					
	Capital	Repayments	Water User	Basis	Cost to Water User	Subvention
	\$M	\$	%	ML	\$/ML/per annum	\$ per annum
Capacity expansion	100.00	\$9,122,687	90%	80,000		\$912,269
New water users			81%	72,000	\$102.63	
Existing water users			9%	108,000	\$7.60	
Replacement/Betterment	10.00	\$977,117	100%	108,000	\$9.05	\$0
Environmental control	5.00	\$488,558	50%	180,000	\$1.36	\$244,279
Plant (7.5 year life)	0.50	\$91,213	80%	180,000	\$0.41	\$18,243
Plant (5 year life)	0.25	\$61,791	80%	180,000	\$0.27	\$12,358
	\$115.75	\$10,741,366			\$2.04	\$1,187,149

Table 2. Examples of 'Credit Foncier' Loans

Interest Rate	No. of Years	% Repayment	Cash Repayment
Loan Amount		\$100,000,000	
7.00%	50	7.25%	\$7,245,985
8.00%	50	8.17%	\$8,174,286
9.00%	50	9.12%	\$9,122,687
9.00%	50	9.12%	\$9,122,687
10.00%	50	10.09%	\$10,085,917
Loan Amount		\$10,000,000	
7.00%	25	8.58%	\$858,105
8.00%	25	9.37%	\$936,788
8.50%	25	9.77%	\$977,117
9.00%	25	10.18%	\$1,018,063
10.00%	25	11.02%	\$1,101,681
Loan Amount		\$5,000,000	
7.00%	25	8.58%	\$429,053
8.00%	25	9.37%	\$468,394
8.50%	25	9.77%	\$488,558
9.00%	25	10.18%	\$509,031
10.00%	25	11.02%	\$550,840
Loan Amount		\$500,000	
7.00%	7.5	17.59%	\$87,947
8.00%	7.5	18.24%	\$91,213
9.00%	7.5	18.91%	\$94,531
10.00%	7.5	19.58%	\$97,900
Loan Amount		\$250,000	
7.00%	5	24.39%	\$60,973
7.50%	5	24.72%	\$61,791
8.00%	5	25.05%	\$62,614
9.00%	5	25.71%	\$64,273
10.00%	5	26.38%	\$65,949