

Dr Penny Burns'

# ASSET MANAGEMENT QUARTERLY

ideas, contacts, good practice

## Issue 4 1994

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Gutteridge, Haskins and  
Davey, Melbourne  
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TW Crow Associates,  
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## Editorial

### Milestones and Monitoring.

The AMQ has achieved several milestones since the last issue. The 100th subscriber was added to the lists - thank you Salisbury Council - and we received our first inquiry from overseas! Both quite exciting events and monitoring them helps keep track of where the interest is and how we can do better. The same can be said of monitoring asset performance.

Why monitor asset performance? Monitoring provides all levels of management with:

- . justification to support new capital works submissions
- . a method to reduce operating costs or improve services while meeting budget constraints
- . an ability to be pro-active in the operational and maintenance components of an asset with focus on the potential for improvement.

It is, however, necessary to Distinguish between Agency Performance and Asset Performance. Agency performance indicators are often set so as to relate the agency's performance to the level of the assets that the agency controls, for example, a financial return on assets. These are *agency* performance indicators, not *asset* performance indicators. *Asset performance is at the level of a workload indicator.*

On page 16 I present my "Three Rules for Monitoring Asset Performance" - the **focus is on having a purpose for what you are monitoring.**

*Penny Burns*

### Subscription Options:

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Includes referral service and all bonus issues.
2. Library, \$200  
Includes all bonus issues. Referral service at cost
3. Multiple Copies (same agency, individually addressed) \$150  
Includes referral service and all bonus issues.
4. Corporate (same agency, all copies posted to the one address)  
5 copies \$300. 10 copies \$500.  
Option to purchase bonus issues; referral service at cost.

### Referral Service.

If you are seeking information on a particular topic or wish to be put in touch with someone with experience of that topic then you may ring or fax (08) 281 5795. If I know the answer I will tell you. If not, I will try to find out for you. And, if all else fails, I will print your request, if you wish, as a "letter to the editor" so that others may assist. This service does not only apply to literature or people either. If you have a problem that you can't solve, you are welcome to write saying (a) what the problem is and (b) what you have tried so far and with what results. Again, if I cannot make a suggestion which gets you over your block, we will look for someone who can.

### Bonus Issues

Several bonus issues are planned. The first of these "Case Studies in Life Cycle Costing", approx 60pp, covers 15-20 separate life cycle cost studies. Publication around December. Individual copy price, if not included in subscription, of \$55 (including postage).

### To Subscribe

Write to "Asset Management Quarterly", 21 Lynne St, Brahma Lodge, SA, 5109, stating desired subscription option, giving name and address and including cheque for appropriate amount as above.

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## ASSET VALUATION

**The dilemma for private companies.** *Peter Wilson, Managing Director, Stretton Asset Services, (02) 583 198* in a recent IIR address, pointed out that the two key financial parameters used in judging the financial performance of firms "Return on Funds Employed" and "Net Asset Backing" presented the asset manager with a dilemma when it came to asset valuation. On the one hand, a good showing on the return on funds employed required the largest return for the least amount of money invested in assets - and therefore was assisted by low asset values. On the other hand, a good showing on net asset backing, which demonstrated company strength required the biggest possible asset amount for the lowest share price - and was assisted by high asset values.

..... **and the problem for government.**

Many government organisations are now applying the concept of rate of return and it is becoming a key managerial performance indicator. Managers could be expected therefore to err in favour of low asset values and there is nothing in the public sector equivalent to the "net asset backing" concept to even up the scales. This may suggest a bias for undervaluation of public sector assets which will overstate the rate of return and present difficulties when assets need to be replaced.

**SEMINAR ON ASSET VALUATION  
9 FEBRUARY 1995  
CARLTON ROOM, OLIMS CANBERRA HOTEL,  
CRNR AINSLIE & LIMESTONE AVENUES, BRADDON, CANBERRA**

Issues of asset valuation from a number of viewpoints are to be discussed at the following seminar organised by the Estate Management Branch of the Department of Urban Services, Canberra. At only \$50 for the day and \$70 with lunch, it is a steal.

There is a good range of speakers who have been chosen for their differing views on the valuation of and methodology used in valuing public sector and infrastructure assets. This should guarantee a thought provoking and stimulating session.

Speakers include

- > Michael Churchill, Corporate Advisor of Leadenhall Australia Pty Ltd who will speak on a method of valuing assets as part of a business assessment. He has been responsible for a number of such business valuations, including an assessment for the Engineering and Water Supply Department in SA.
- > John Chan-Sew from the New South Wales Treasury, who has been involved in most of the developmental public sector work with respect to GTEs
- > Jeff Powys from the Capital Works Group of the Premiers Department of NSW
- > John Turner, Secretary, Department of Urban Services
- > Malcolm Coleman, General Manager, Australian Valuation Office, and
- > Professor Terry Bishop, Associate Prof of Local Government Studies, Charles Sturt University, Bathurst.

Contact Jenny Sare on (06) 207 6241 or fax her on (06) 207 6245 for a registration form.

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*Interesting Issues from the IIR Conference held in Sydney, 28-29  
November 1994*

**"COMMERCIALISING ASSET MANAGEMENT"**

**"Core/Non Core v Strategic/Non-Strategic in the decision to contract out"**

Carlos de Carvalho, Price Waterhouse Urwick (02 256 7708) argued that the decision on what to contract out should not be based on the idea of what is, or is not, your core business, but rather on what is strategic and what is not to your business. Managers do not usually have difficulty defining what is and what is not strategic but often cannot distinguish core from non-core quite so easily. He points out that Optus has contracted out its entire data centre and many would rank its data centre as part of its core business. What it hasn't contracted out is what it considers to be its strategic functions, such as business development and marketing, business planning, capacity planning and decision making.

**"Your skill requirements will change with outsourcing".**

In fact, as agencies contract out more of their non-strategic asset maintenance and management activities, increasingly what they are left with is their high level decision making. Carlos points out that whereas the required staff skills used to be those of task management and operation, job planning and control, increasingly it will be business planning, conducting tenders, contracts administration and performance monitoring. Which raises the key point as to where these new skills are going to come from. As existing staff have had little need for these skills in the past, they may have to be retrained - but it may be that entirely new staff with the appropriate skills are required. This is an important part of the change management that needs to be planned for.

**"Sale and Leaseback - some taxation considerations"**

John Loschiavo, ICI Australia Limited (03 665 7569) informed us that the Australian Tax Office currently has a proposal which will deny property owners income tax deductions for depreciation, amortisation, and other allowances where:

there is a long term lease to a government tenant or other tax-exempt entities (ten years is considered a long lease)

buildings and fixtures are on private leasehold land;

buildings and fixtures are on Crown lease land where certain finance arrangements have been used to fund construction or acquisition of these assets; or,

a building is the subject of a sale and leaseback transaction.

The new rulings also impose strict conditions on how funds can be raised to develop property which may eventually be occupied by government tenants.

**Allocate depreciation carefully!**

Peter Wilson, Managing Director, Stretton Asset Services Pty Ltd (02 583 1298) gave an example of a two product factory that decided to close one operation because management considered it to be uneconomic. Actually, it was quite profitable. The accounting system was allocating all the depreciation of both operations to the one product! Peter observed that companies rarely make any use of their depreciation data for management purposes. This might account for them being seen as just another impost on them by the accountants. He advocated using asset values expressed in current dollars as a means of comparing one unit or plant with another and depreciating these current values. Only when depreciation is calculated correctly and allocated correctly does it become a tool that management is able to use.

## Transfer Prices - It is important, and not too difficult, to get them right.

Why use transfer prices?

It is often supposed that the charging of transfer prices is necessary for an agency to know what resources are being used for different projects or purposes. However programme performance budgeting objectives can be met by conventional management accounting methods within Branches which need not involve the charging of transfer prices.

The use of transfer prices in recharging becomes necessary only when the agency desires to decentralise its decision-making by allocating responsibilities to each Branch together with budgets that are to be utilised efficiently in carrying out these responsibilities.

The dangers of transfer prices are (a) that the prices may be set incorrectly and thus give the wrong signals and (b) that the messages given by branches responding to these signals will be ignored by management and the individual branch responsibility for managing its funds will be overlaid by a mandatory requirement to use a certain service, no matter how inefficient it appears to be.

Some years ago I was involved with a department that used a "full cost" transfer system for its maintenance depot. The way this worked was that the full costs of the week's operations were shared between the jobs handled that week. It may have seemed fair but the effect was that whenever there was idle time, the costs per job went up. Seeing costs go up, branches avoided using the depot, so unit costs increased further, and so

on until it seemed cheaper to send a broken item to salvage and buy a new one rather than have it repaired at the maintenance depot.

Did the department review its pricing system? Unfortunately no. Instead it persuaded the Minister to mandate the use of the maintenance depot not only for this department but also for a number of others "unless there were exceptional circumstances", in order to get the usage levels up. Work did increase as a result of this action, but not for the depot - for clerks devising "exceptional circumstances"!

Eventually they turned to a marginal costing system, with idle time charged to its own account, making costs transparent and increasing patronage in the short term. In the longer term, the question that needed to be resolved was not what prices were to be charged but whether an in-house service was justifiable.

Later, I was to find that similar problems beset other government departments and in a Harvard Business Review article of Sep-Oct 198, it was clear that private companies were not immune, either..

**Edward J Kovak and Henry P Troy.**  
"Getting Transfer Prices Right: What Bellcore did" *Harvard Business Review*, Sep-Oct 1989, pp 148-154.

This article describes the problems of Bellcore - the research arm of the old AT&T that was formed as a separate company to service the seven regional holding companies.

AT&T set up a number of business units, each of which were to recover their full costs and subsidies were not permitted.

## Transfer Prices

**"For the New Asset Manager"**

The research arm found that certain services, "namely word-processing, graphics, technical publications and secretarial services" had "prices that seemed high and arbitrary. They stood to save a lot of money by hiring independent contractors to do the work or by doing it themselves."

"A majority of Bellcore employees are scientists, engineers and mathematicians, most of whom have advanced degrees and are paid accordingly. In 1987, many of them were doing their own word processing and graphics. Others were negotiating with vendors to do the work. This was hardly ideal; the researchers weren't doing what we paid them to do. Also some of the outside contractors produced low-quality work or charged more than their estimates. And by going outside we risked the security of our research reports and technical requirements documents."

"The bypassed service centers had their hands tied. They were obliged to pass their costs on to a shrinking client base, which drove unit costs up. At one point, typed documents were costing \$50 per page."

## Setting up your own Asset Management Library.

*Recently a number of readers have asked for assistance in stocking their newly developed asset management libraries. Last issue a number of suggestions were made with respect to basic literature and this issue features a number of manuals and guidelines now available.*

The original public sector asset management manual is the New South Wales Government Capital Works Investment "Total Asset Management Manual" issued in 1992, with a recent update. Current price is around \$200, but contact the Asset Management Planning Unit on (02) 372 8896 for latest information on cost and availability.

While heavily focussed on procedures within the NSW Government Sector, the 13 guidelines provide a good conceptual basis for the entire range of asset management activities from *economic appraisal; value management; private sector participation; post-completion reviews; asset valuation; asset capitalisation; asset life cost; demand management; heritage*

*assets; monitoring asset utilisation and performance; asset registers; and energy management to risk management.*

I found the section on *Heritage Assets* an excellent model for "living with heritage assets".

**National Asset Management Manual.** A new asset management manual, has just been produced for the Institute of Municipal Engineering Australia (IMEA) by GHD which will assist the development of best practice asset management by local government and public sector authorities.

The manual, now on sale from the IMEA office in your state for \$300, provides the principles, skills and guidelines needed for the professional management of municipal assets. It is written for all individuals involved in asset management - from technical and financial staff to elected members, senior managers and works superintendents.

**Contents include:**  
*Definition of Asset Management*  
*Benefits of Asset Management*  
*Life Cycle Asset Management*  
*Maintenance or Renewal Assessment*  
*Condition Assessment and Performance Monitoring*  
*Risk Management*  
*Prioritising Programs*  
*Asset Management Information Systems*  
*Integration with AAS27 Requirements*  
*Technical and Financial Integration*  
*Implementation Guidelines for Basic and Advanced Programs*

Training courses in the use of the manual are also being run by GHD who may be contacted on (03) 600 1100

**The Commonwealth Department of Finance** has also produced a manual entitled "Managing Assets for Improved Performance".

Unlike other manuals, this has a strong focus on financial and administrative management of assets with several sections devoted to the role and responsibilities - and with helpful advice - for fixed asset register clerks. The person to contact is *Charles Manning (06) 418 2325* who will be able to suggest a local office where you may view and arrange to obtain a copy if you should wish.

Recently released (October 1994) are the "Guidelines on Accounting Policy for Valuation of Assets of Government Trading Enterprises" by the Steering Committee on National Performance Monitoring of Government Trading Enterprises. It comes in two volumes including an overview volume.

Even if you are not a trading enterprise, these guidelines are worth examining. They represent the results of extensive work by the Steering Committee over a period of time. The overview document, in particular, provides a very clear presentation of a number of quite vexing issues, like when is it appropriate to value the assets and when the business; valuation for performance is yet another valuation need - with different answers - to add to the list of valuation for insurance, valuation for the balance sheet, etc. etc. Both volumes may be obtained, free of charge, from the Industry Commission, Level 28, Collins Tower, 35 Collins St, Melbourne, Vic 3000 or fax # (03) 653 2199

BHP-Steel's post implementation review practices have been recognised by the leading world authority - Bekaert Stanwick, Belgium - as "world's best practice". To see why, I spoke recently to Robert Lojszczyk (pronounced Loscheck) who is the Group Manager of BHP-Steel's Business Performance and Evaluation Section.

Robert explained that twelve months after final commissioning of a project (ie the start of operations), a systematic review is carried out examining the extent to which the project has met the key performance indicators (KPIs) claimed in its original justification. If the full benefits are not being achieved, corrective actions are identified. The project continues to be monitored until it is on track.

While finance is a major KPI, it is not the only one. Safety, environmental, operating tons per hour (or equivalent depending on the project), manning figures, and yield are some of the others. Information from these reviews is distributed to all divisions and forms the basis for future proposals and reviews.

1. BHP'-Steel's Capital Procedures Manual sets out guidelines for the submission of proposals and the general procedures for review. The scope of the review covers engineering and construction aspects, operational performance, marketing, financial evaluation and other aspects peculiar to the particular submission.

Robert's small (three person) Business Planning and Evaluation section (BPE) are available to advise divisions on the scope, for example there may be things which were not included in the submission but which are subsequently considered to be important.

2. BPE keep a running log on all of the projects large enough to require approval at Head Office level and notify the relevant division three months in advance of the 12 month review

3. The project evaluation accountant in the division who was responsible for putting together the financials for the original proposal is also the person responsible for co-ordinating the divisional response at review time. The information he gathers, includes the financial

*(Continued on page 8)*

## Post - Implementation Review

## BHP - World's Best Practice

### *Editorial Note:*

*Of five major projects (over \$10m) that I examined recently for the South Australian Commission of Audit, only one had conducted any sort of post implementation review, and that was limited mostly to financials, rather than to an estimation of the extent to which the project's promise had been fulfilled. It seemed to me that we were throwing away our chances to perform better in the future by not examining how we had performed in the past. "Too hard", said one, "Witch hunts" said another, "Too busy" said a third, "We tried, but no-one seemed really interested." said a fourth. If you have been exposed to these negatives, you may be heartened, as I was, to see the positive attitude taken by BHP-Steel.*

### **BHP-Steel's success results from the following four key actions:**

1. Project justification requires documented KPIs.
2. A systematic checking and follow up procedure is managed from the HO.
3. Responsibility for providing the information for the project review is with the proposing division, but is subject to assessment at a higher level.
4. There is a regular feedback and follow up process.

*(Continued from page 7)*

reports on the proposal, the engineer's review, what modifications or changes were made (involving extra costs or savings), any changes in the market situation from those projected and anything else that may be considered to be relevant to a proper understanding of the project.

This information is checked at management or divisional level and signed off by the business planning manager, engineering manager, manager of the unit where the activity is carried out, the finance manager and the group general manager. *All of these officers thus accept ownership and are held accountable.*

The review then goes to the Head Office where BPE documents everything thus ensuring it is on file for future use, and arranges for any necessary specialist advice at the HO level (eg environmental, OH&S, technology, legal and marketing). The review, together with specialist comment, is then submitted to the GM, the Board, or the CEO, depending on its importance.

Finally, there is a report back to the division. If all is ok, the division is clear. If not, another review (either a general review or confined to a specific aspect) will be scheduled for a future date. If a specific review is required the details of the review scope will be spelt out.

**4. - Most important of all!**  
*There is regular feedback and follow up.*

As part of their review all divisions are required to report on the lessons that have been learnt, for example, there was

an initial tendency to assume full operation of new technology at an early stage but experience has shown that operation levels have to be built up. This "ramping up" must now be explicitly provided for in proposals and can have a substantial effect on the financial estimations.

It has also been learnt that there needs to be considerable preparation and planning to enable new technology to work successfully with the older technology with which it will have to operate. This is now part of the risk analysis that proposals must cover.

**BPE now, as an annual exercise, reports on all projects to all managers, so that all can benefit from the lessons learnt by others. BPE also conducts a variance analysis on IRR/NPV/Payback estimates and reports the causes of variances.**

BHP-Steel finds that their Project Implementation Review process is helping to improve their capital processes and identify and reduce their risks.

***Your ideas on post implementation review are welcomed for these pages . If you wish to speak with Robert or one of his staff, the number is (03) 609 3333 or by fax on (03) 609 3015.***

*(Transfer Prices Continued from page 5)*

What was Bellcore's solution? Doing nothing would not have improved morale in the service centres. Dismantling the four service centres and outsourcing would only have required the scientists and engineers to make their own clerical work arrangements outside which

would not only have been inefficient use of specialist time but could raise security risks. Mandating was rejected because the technical organisations would not like it and would undermine it, (which is , precisely what happened in the maintenance depot case. )

The solution was to examine the costing and pricing system. They weeded out inefficiencies in operations and closely examined the method of allocating overheads, which, till then, had been purely on the basis of employment with no allowance for differential costs. They decided to put effort into determining their true cost drivers and found that space allocated to people intensive areas was, in fact, less costly space than laboratory and computer intensive areas and changed the price allocation. They found that services such as library, travel, conference and legal costs, were used only lightly by secretarial staff but much more intensively by technical staff. In fact they found that the cost drivers for a number of their overheads were better described by the proportion of technical to secretarial staff than by pure employment numbers.

They rewrote their cost codes and changed the cost allocations. Costs in some areas, particularly technical, went up. They stood by their guns.

"We're committed to our transfer pricing system. We want to preserve it, and that means we'll occasionally have to tweak it. .. we'll know when it's time to do fine tuning: when good managers complain loudly or act illogically. "

*Is improved pricing an alternative to outsourcing for you?*

Life cycle analysis traditionally looks at the period between the acquisition of an asset, or a component, and the need to replace it or to carry out some major refurbishment activity.

But for large and lumpy infrastructure assets such as dams, sewerage and filtration stations, etc, which need to be constructed ahead of full demand, **life cycle thinking may be used, to model the period of time between construction and full utilisation.**

Utilisation life cycles are important for asset managers who need to plan for increased capacity, or to decide whether to refurbish an existing plant (thus taking it out of operation for a period) as against build anew. Even simple changes in design may affect utilisation as can easily be seen in the impacts on the utilisation and, therefore, efficiency of an air conditioning system if internal walls are added or removed.

Where an asset system consists of multiple layers such as a water supply system with headworks, watershed supply level assets and zone level assets, the integration of the different utilisation patterns can be complicated. This is especially so, if the rate of utilisation for the different levels is driven by different factors.

A similar pattern of layering could be seen in say, a hospital, with the utilisation rates of office space, ward space, surgical space, corridor space and plant room space growing at differential rates and driven by different factors.

These are problems that need to be addressed in the construction of a long run marginal costing model, but the issues are broader than costing alone.

The type of asset layering chosen has implications for the period over which capital expenditure and cost data need to be collected and evaluated.

For example, water zones operate with a 10 year capital expenditure program which is considered a reasonable period in which to detect growth expenditures and relate these to increments in demand.

Watersheds, however, with their different asset types are considered likely to have longer life cycle before growth expenditure occurs and for that reason, a period of 30 years is more reasonable for marginal cost calculations.

System assets, like major reservoirs have even longer cycles before capacity would require expansion so the period chosen for the top system supply level is more appropriately 50 years.

These periods do not relate to the period in which the capital is likely to be "used up" and need replacement, but rather to the period in which it is likely to go from severely underutilised to full capacity use. Clearly these periods will be dictated by whether demand is growing quickly (as may be the case in new suburbs) or is growing more slowly.

## **Modelling Utilisation Life Cycles**

**- a tool for  
financial  
management**

The level of utilisation is an important cost factor and the development of such utilisation life cycle models could be very useful for financial asset management. For further information on the construction and uses of this type of modelling approach, you may contact the following who are experienced in this area:

Robert Hood, Financial modeller, Robert Hood and Associates (03) 614 1771  
Jeff Mayo, Engineer, GH&D (03) 600 1100

# The Timing of Large Infrastructure Investment.

*Should we build ahead of demand, after demand, or somewhere in between, and if so, where?*

Take the following situation. Growth in demand is occurring at  $x\%$  a year giving rise to the demand curve shown in the diagram. For argument's sake let us assume demand management has been applied and this is the residual growth curve. Let us also assume, for simplicity, that the minimum asset increment is (a) and (a) is equal to 10 years demand growth. If we have a policy of building in advance of demand, we will follow the solid line, if, on the other hand, the policy is to build only when demand justifies the full capacity increment, we would follow the dotted line. Which policy minimises user costs?

If we build in advance, costs incurred are the **costs of excess capacity**. These can be expressed as the level of excess multiplied by the cost of capital.

If we build only when the growth is sufficient to account for all the new capacity, then the costs incurred are the **opportunity costs to the consumer of going without, or finding some substitute** (the dotted area). Without knowing what other opportunities exist, it is not possible to be as definitive about the opportunity costs as we can for the costs of excess capacity but two factors are worth noticing:

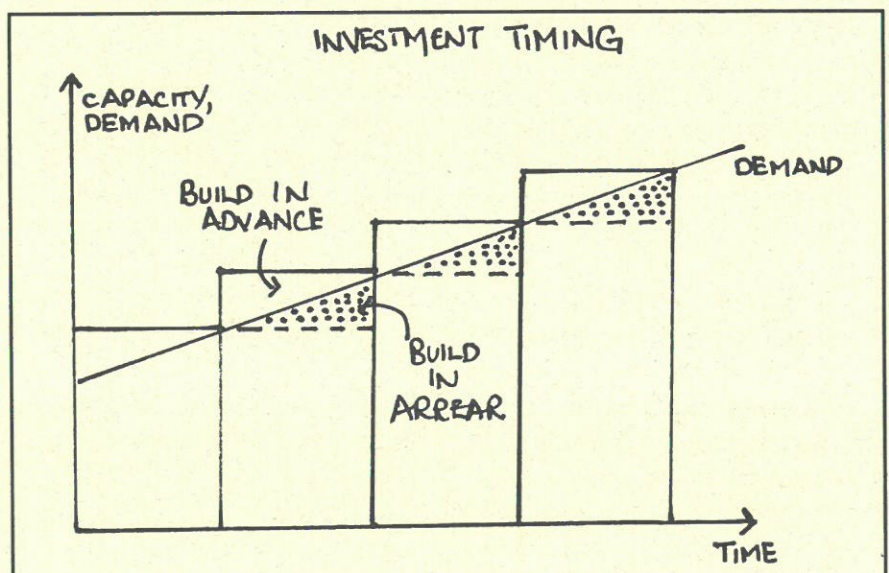
(1) If the two areas, which are equal in size the way we have drawn them, are also equal in cost, then the net present value of the opportunity costs would be lower than the net present value of the excess supply costs since the full impact of the opportunity costs is deferred un-til the end of the period whereas the excess supply costs weigh heavier at the beginning of the period than they do at the end.

(2) Whereas the excess supply is essentially "passive" in that its existence does not induce any behavioural changes, this is not the case for the opportunity costs. These costs are the costs incurred precisely by having to make

some adjustment. However, having made the adjustment, it may not be worthwhile adjusting back again when capacity increases. Thus a person who has adjusted to reduced availability of water (and hence rationing prices) by installing water saving devices is unlikely to remove them if the price of water should subsequently fall upon the introduction of increased capacity and lower prices. It is thus likely that the "opportunity cost" policy of "building after" rather than "building before" could lead to permanently lower demand for infrastructure and enhance the demand management effect.

This choice applies to large utilities with local monopolies. Competition would ensure that the service or commodity was supplied to the customer, but the overall cost to the community could be higher as a result.

**What do you think?** Would we be "better off" not to build in advance? And if the answer is "somewhere in the middle", what should be the timing rule? **Send your comments, for publication, to (08) 281 5795. All ideas welcome.**



Pressure on State budgets and on global loan limits has encouraged numerous "innovative" asset financing deals.

#### EXCERPTS FROM THE NSW AUDITOR-GENERAL'S REPORT.

The New South Wales Auditor General has examined a number of these in a special report *"Government Financing Schemes with High Audit Risk"* (1994), *NSW Auditor-General's Report for 1994, volume 2*.

If the following excerpts are of interest you may like to acquire the report itself, and you may also wish to read the AG's *1993 Report to Parliament (volume 3)*.

#### Homefund

"In Volume Three of 1993, reference was made to HomeFund and the nature of the transactions cumulatively supporting about \$4.4 billion of mortgages. In my view, these transactions ought to have been reflected fully in the Government's accounts. Mortgages outstanding at 30 June 1994 amount to about \$1.5 billion."

#### State Fleet

"In the same Volume it was noted that the sale motor vehicles previously owned by State Fleet Services provided \$95.7 million towards the Commercial Services Group's dividend of \$114.3m to the Government in 1992-93. As before, State Fleet Services will manage the existing fleet, will purchase new motor vehicles as they are needed by Government, will ensure that those vehicles are adequately insured and maintained and will sell the vehicles when they are to be replaced. However, State Fleet Services will now undertake these tasks as agent for the Macquarie Bank Ltd group, the legal owner of the vehicles. The transaction, sup-

ported by voluminous agreements, allows up to 0.5% savings in finance costs (because at least, in good part, of income taxation advantages allowed to the Bank.)"

#### Sydney Harbour Tunnel

"In October 1994 a report was tabled on the Sydney Harbour Tunnel. It cited documents that showed that the Government assumed all of the material post-construction risks of the Tunnel. It also showed that the private sector nominal owner of the Tunnel is indifferent to the revenues raised from Tunnel tolls (they go towards reducing the Government's debt) and that all of the financing responsibility for the Tunnel rests with the Government. ...." (p.17)

#### Complexity of Arrangements

"To the extent that we have examined these transactions, we have seen their formal arrangements can sometimes allow appearances to dominate substance; that the complexity of the arrangements often carries with it its own costs (transaction costs) and risks (complexity risks); that

**"the private sector counterparty often seems to be an important financial beneficiary while the Government is sometimes left with the important financial risks and no immediate title to assets."**

## Private Sector Financing of Public Infrastructure

### the Lessons from New South Wales

"Some of these financial risks have been crystallised as follows:

In the HomeFund Program the costs to the community of repairing the scheme is estimated to be about \$390 million in today's dollars (as well as requiring further significant capital investment to buy more than 1,500 properties from HomeFund clients who cannot afford their homes).

At the time of writing, we became aware of a default by the counterparty in two of the State's cross-border leases through the counterparty being placed into liquidation by a court order on 11 August 1994." (p.20)

**AG's Recommendations**

"Treasury should be allowed access to relevant documents, belonging to any Government agency, which deals with commitments that can materially affect the Government's financial position."

"Treasury should also be empowered and asked to examine, and advise the Government on, all proposed one-off commitments, above a financial threshold, that concern private provision of public infrastructure, "sale" of Government assets that are "leased" back, and other, unusual financial transactions, if only because the sharing of risks and benefits in these transactions is often quite hard to identify. Treasury has already assumed some of these powers in regard to new cross-border leases."

If the Government's commitment to particular arrangements envisaged for a project depends on the accounting treatment that will be accorded the transactions, it would also be sensible for it to receive its own accountant's advice and the independent auditor's advice on that treatment, before the project is executed." (pp 23-24) and he concludes "Of course, it is preferable that the Government - as it has now sensibly restricted cross-border leases - eschews all deals which are only or mainly attractive because of their external form."

**The pursuit of appearance does not provide a sound economic basis for the State's future prosperity. To the contrary, it harbours and hides problems which will emerge in a future time." (p.24)**

**NSW PAC Report No 80**

Infrastructure financing is also the topic of the *NSW Public Accounts Committee's Report no 80 (February 1994)*

**"Infrastructure Management and Financing in New South Wales, Volume 2: Public-Private Partnerships - Risk and Return in Infrastructure Financing"**

In the Chairman's forward to this report, he says

"It is a complete nonsense that the Auditor-General and Treasury, on the one hand, and two "Big Six" accounting firms on the other, can have a fundamental conflict of opinion over whether the Harbour Tunnel is a joint venture, and whether the RTA's accounts should be qualified to the tune of \$650,000,000. "

"Such a conflict sends all the wrong signals to investors and the public, and indicates that accounting standards are in need of urgent review."

**Transparency is the key, and the Committee believes it is about time that public-private infrastructure projects are described without penalty for what they really are." (p.5)**

The report is a comprehensive, and fascinating, account of traditional financing, tools for attracting private financing such as infrastructure bonds, loans and guarantees from Government, "value capture" and "shadow tolls", and obstacles to effective use of private financing. (240pp with glossary and appendices.) (**Contact the Public Accounts Committee, NSW, (02) 230 2631**)

**BIE Occasional Paper No 7**

Also of interest may be the *Bureau of Industry Economics Occasional Paper No 7 "Private Provision of Economic Infrastructure - Conference papers and proceedings from the BIE Infrastructure Forum, Canberra 1-2 June 1992*. The first article is by American academic, David A Aschauer, one of the leading protagonists in the infrastructure/ productivity growth argument.\* Other articles include "Potential Gains from Efficiency Improvements in Public Infrastructure: A BHP Perspective" and "The Role of Superannuation Funds in Infrastructure Investment". **Enquiries regarding this and all other BIE publications should be directed to the Publications Officers, Bureau of Industry Economics, GPO Box 9839, Canberra, ACT 2601. Phone inquiries: (06) 276 2347.**

**Directions In Government, June 1994.**

The cover story of this issue is on Private Sector Funding of Private Infrastructure. There is an article on the Queensland Government's Infrastructure Fund in which they report the plan to use proceeds from public sector equity and returns from "mature" projects as the core of a new fund to finance a wide range of infrastructure development. Whereas the NSW approach is for predominantly private financing to avoid the Vic Eco Dev Corp type drain, Queensland's proposal is almost entirely public sector. Joint private, public financing deals are also addressed by Chris Furnell of the Melbourne Office of the national law firm Clayton Utz.

**3 Ways to Measure Asset Service ("Economic") Life.**

1. Consult previously published sources such as the NPWC Life Cycle Costing Figures
2. Calculate Survivor Curve Models
3. Calculate Residual Life Models

The first method needs no explanation.

**Survivor Models**

The second method, Survivor Curve Models, originated in the United States in the early 1900s. The most widely recognised survivor curves in the appraisal industry, according to Richard Ellsworth, engineer and appraiser, in an article on this subject in "The M/TV Journal" Fall 1993, (the journal of the International Management and Technical Valuation Committee of the American Society of Appraisers) are the **Iowa Curves** developed by Edwin B Kurtz in the 1930s at what is now known as Iowa State University.

The Iowa curves were created from the study of 176 property types and resulted in the classification of 18 Iowa type curves. The Iowa curves were classified according to three curve types:

- . six left moded L curves,
- . five right moded R curves,
- and
- . seven symmetrical moded S curves.

Left-modal curves describe life characteristics whereby the greatest retirement frequency occurs prior to the average service life.

Right modal curves exhibit their

greatest retirement frequency after the average service life has been achieved.

With symmetrical modal curves the greatest retirement frequency occurs at the average service life." (p.16)

*The results of the Iowa Studies are now quite old and there is probably an opportunity out there for an academic study in updating them on today's materials, conditions, etc.*

To use the curves, all assets (both those still in use and those retired) are ranked according to age. This enables the calculation of the size of each age cohort. From this are deducted all the units that were retired at that age and this enables the calculation of the percent surviving.

The survival curve thus obtained is then compared with one of the standard Iowa Curves to establish the "curve of best fit" ie the one that minimises the squared differences between the observed curve and the survivor curve model. The best fit model is adopted and this establishes the asset life.

3. A variation on the Iowa approach is to use "residual life estimates" against age to establish a distribution of the asset life probability. This is more subjective, of course, but it enables an approximation of asset life with rather less data than is required to get a good curve fit for the Iowa models.

*This, too, would be useful for an academic study. The study would be even more*

# Measuring Economic Lives

## - The Survivor Model

*useful if there were indications of the conditions of use, abuse, or indications of the maintenance practices applied, that might account somewhat for the variation in the life estimates. (For further information contact the Editor on (08) 281 5795)*

#  
 Next issue will feature a study by the RMIT and Melbourne Water estimating failure models by filtering data to eliminate non-structural causes of failure.  
 #

## Total Quality Management and Asset Management.

The work of Neville Binning, who is a PhD student at the University of Western Australia, was featured in the first issue of the Asset Management Quarterly. Neville's aim is to marry the total quality management approach with asset management. The following features selections from a literature review of Public Infrastructure and its management that he prepared for a seminar series in the Research Centre in Accounting and Finance. The paper features some fascinating model building based on Neville's reading of the Japanese quality work as well as an extensive literature list. If you would like a copy of the paper, please contact **Neville on (09) 323 4111**

..... The net result [of increased customer satisfaction through attention to service quality] is increased market share and profit margin. This in essence is Deming's "Productivity Theorem" [Deming, 1982]. It has the consequence, however, of escalating the service level (quality) required for customer satisfaction [APESA, 1991]. For once current customer satisfaction requirements have been met, 'adjustment' by the customer to a higher order of expectation inevitably occurs.

Service level supply and especially the escalation phenomenon have important implications for the management of public infrastructure. In seeking to meet (if not exceed) customer satisfaction requirements, the 'out of sight - out of mind' asset preservation and

replacement needs tend to be subordinated, so compromising achievement of the least long term (life cycle) cost.

Service level is dependent on the standard to which the infrastructure is provided and the operational efficiency with which it is used - given that service level is a result of the interaction between the infrastructure and the users. It is also dependent on the infrastructure being appropriately preserved (through timely maintenance or replacement). There must be an adequate ongoing allocation of resources that is an appropriate balance between provision of additional infrastructure and the preservation of existing stocks, as reflected in Figure 1.

This allocation of resources occurs through a somewhat complex decision system that is prone to two basic types of deficiencies. Decision system components may be 'missing', invariably the preservation component - inadequate performance monitoring, modelling and reporting, so precluding timely allocation of resources to maintenance. There may also occur a net bias towards short term positive outcomes at the expense of long term least cost sustainability. This is an area of contention with regard to the application of the short term results driven Management by Objectives (MBO) [for example - Cascio, 1992.....] particularly its apparent conflict with Total Quality Management (TQM) with its attendant long term context of management decision making...

The 'completeness' type of deficiency can and is tending to be addressed through comprehensive asset management systems... These involve monitoring of the current physical condition and utilisation of the asset, then forecast (through use of modelling) the future performance requirements to identify the maintenance that is necessary for this to be achieved at the least long term (life cycle) cost. The

maintenance requirements should then be incorporated into resource allocation (budgeting) decisions.

The 'bias' type of deficiency results in resources only being allocated to preservation needs once the asset evidences the more apparent (visible) forms of decay (neglect) and current service level is being compromised. That is, preservation needs are met but only once allocation of resources represents a short term positive outcome - some immediate benefit will result. However, to have realised the least long term (life cycle) cost opportunity required less costly preservation effort much earlier and so has been missed!

The 'bias' results from any one or a combination of:

- # There being inadequate information of the long term consequences of current decisions and so decision making occurs on a less than thoroughly informed basis.
- # The long term consequences of current decisions not being adequately relayed to the decision makers in terms they find meaningful/useful.
- # There being inadequate motivation (reward/recognition) for decision makers to make those decisions that are 'best' over the long term in preference to those which offer short term positive outcomes. This relates to accountability for the consequences of decisions.

These service level decision deficiencies, both 'incomplete' and 'bias' types, aggregate with the service level supply 'losses' (gaps) mentioned previously, to produce an overall cumulative adverse impact on service level. ... The net results is of public infrastructure not being an ongoing asset but proving to be a future liability."

.....to read on, ring Neville !

Just about all States and Territories are now seeking ways to develop a "Whole of Government" approach to asset management. The broadscale condition measurement index being developed as part of Victoria's "Management Improvement Initiative" and reported in the last issue (pp8-9) is part of this movement.

In South Australia, the Treasury is seeking to develop broad measures of asset utilisation (contact is **Ken Murrell, (08) 226 9626**) and the ACT has recently developed a "Whole of Government Property Portfolio Strategy" (contact is **Helen Marsden, Estate Management, Department of Urban Services, on (06) 207 6246**).

**Peter Keane writes below about the new Queensland Building Information System.** Peter is interested in interacting with other agencies working in the same area and he may be contacted on **(07) 224 5487** or by writing to Manager, Strategic Asset Management Branch, Government Services Group, Administrative Services Department, 80 George St, Brisbane, 4000.

"Queensland Government has placed asset management firmly on the agenda for all its Departments as part of its comprehensive financial management strategy. The need is evident when recognising that there is in Queensland more than 32000 government buildings representing an investment in excess of \$25 billion.

Central to the issue of strategic asset planning and management of the existing asset base is asset registration. In August, the

Queensland Government gave the green light to the development of the Queensland Buildings Information System (QBIS) by the Administrative Services Department.

In essence, QBIS is an information system that will identify common attributes of buildings required for a whole of government view. QBIS will establish policy for asset registration, set data standards and definitions which will allow periodic aggregation of information into a whole of government asset register. A decentralised structure will be used which recognises the heterogeneous nature of government, the systems development undertaken by individual departments, and recognition of current trends in information technology.

Administrative Services will use the aggregated data to support both government and departments by analysing the data for detection of trends, the generation of performance indicators, and in due course, the setting of benchmarks.

QBIS is a major step by the Queensland Government towards a strategic asset management philosophy. QBIS Stage 1, to be delivered before June 1995, will entail the identification of core information needs and the policy, standards and definitions by which data will be collected and validated. Subsequent stages will address the analysis of the information to meet the needs of government and the departments. A longer term goal of QBIS is to provide a common system to enable consistent development of strategic planning in capital investment, asset maintenance and property.

## Whole of Government Asset Management

The Administrative Services Department has recently undergone major structural change with the establishment of a Government Services Group and a Commercial Services Group. Responsibility for the development and introduction of QBIS as a whole-of-government initiative rests with the Strategic Asset Management Branch is Government Services. In order to support adequate consultation and effective implementation, a QBIS Steering Committee has been formed with representation from the major stakeholders in government asset management."

## Three Rules for Monitoring Asset Performance

### 1. Be Selective!

In the first stage of asset monitoring the agency should select those assets which are directly related to the achievement of its key objectives

Later, priority should then be given to assets (either owned or leased) which

- (i) are considered insufficient to meet current or future demand
- (ii) have the potential for rationalisation and sale or disposal,
- (iii) have high operational and maintenance costs

### 2. Be Purposeful!

Many attributes of an asset could be monitored, for example:

level of use	nature of use
availability	reliability
effectiveness	

\* Note that Condition monitoring is a separate exercise from performance monitoring and while both condition of asset and age may be related to asset performance, their impact on performance as such could best be picked up in one of the measures above.

Choose only those aspects that are important for the achievement of key goals or where changes can be made to improve efficiency or effectiveness.

Possible benefits from monitoring asset performance include:

- identifying redundant asset
- identifying underutilised assets
- identifying inappropriately used assets
- identifying opportunities for improvement
- identifying opportunities for changes in

asset use

Choose **only** those attributes of an asset that are **important for the purpose you have in mind.**

For example, if you are trying to identify underutilised assets, you will wish to measure the level of use that is being made of the asset, if you are trying to identify inappropriately used assets you will wish to measure the nature of the asset use.

... and note that different organisational levels have different purposes!

At the corporate level there are corporate level goals, at the operational level there are operational level goals. Asset performance measures should meet the needs of the goals at the particular level at which you are operating. Thus, for example:

the maintenance supervisor may focus on ensuring a high level of reliability for the asset, ie ensuring that it is not subject to unpredicted breakdown,

the plant manager may focus on availability for the asset ,ie, minimising the time that it is out of service for either repairs or maintenance,

the branch manager may focus on the utilisation of the asset , or how much the asset is actually used, and the regional manager may focus on the appropriateness of the asset's use in a particular location or service delivery.

### 3. Be responsible!

Asset performance measures are a tool for change, for improvement. They are not an obligation, they are an opportunity. *Measure only those aspects of asset performance that are in your power to change, or to recommend changes.*

But remember that assets are only one of the resources that the agency is using to produce its service delivery. **Before making any change, check the impact that the change would have on others - on other assets, on other sections, on other resources.**

The September issue of the Quarterly issued a double headed challenge to asset managers. They could *either*

1. illustrate how two different asset management goals (minimise user costs; minimise long term costs of maintaining the road network) would lead to different expenditure levels, *or*
2. suggest a generic goal or set of goals to provide the right direction for asset managers.

Those who were really keen to test their wits, could try both.

**Only one entry was received.!** Brian Gallagher of the Northern Territory Transport and Works, and winner of the last Back Page Case Study Competition, submitted the interesting response printed here, which I hope will spur the rest of you, now refreshed from your holidays, to pick up your pens (or mouse). The question posed in this case study competition cuts to the quick of our existence. What are we, as asset managers, on about? What guidance do we give to those who are setting up "whole of government" asset policies? (see page 15) What are the guiding principles of our discipline? Congratulations Brian for treading where others were so reluctant to go. A bottle of premium scotch is on its way to you. There is no back page competition this issue because the space is needed for the cumulative index but feel free to send in your late blooming ideas on asset management goals to "Letters to the Editor".

## The Goals of Asset Management

## The Back Page Competition

### The Asset Managers Goal

Do you maximise ROI, minimise user costs, or minimise agency long term costs? Are these even the right questions? What is the asset manager's goal?

The question strikes to the core of the asset manager's toughest assignment. How do you frame performance indicators, on the services delivered by the organisation, that:

define the service performance in terms that are relevant and meaningful to both the customers and decision makers?

can be directly related to your asset performance and deterioration models and hence budget analysis projections?

establish a set of core values to guide your operational people through the myriad of decisions that they face on a daily basis?

This is the critical "Levels of Service" issue and the key is to listen to your customers and focus on what is important to them. For example, most road users are primarily concerned with:

Safety - Is the road safe to travel on? What is the probability of being involved in an accident on this road?

Trip Comfort - What sort of ride does the road give? Does the traffic mix and/or the road geometry increases the normal stress levels of travelling?

Route Availability - Is the road available to use? Are there any restrictions on its use?

Travel Time - How long will/should it take to get there?

100% availability of the Stuart Highway between Darwin and Alice Springs.

Offering a Masters Degree in asset management at the University of NSW.

Draining Lake Pedder.

Setting a 4 week maximum wait time for elective surgery at Royal Melbourne Hospital.

Floodlighting the Gabba.

Overall the asset managers goal is to shift the annual debate from dollars to outcomes and develop methodologies which link the outcomes to the costs.

It's really quite simple, actually.

## Deprival Value .. and a walk-thru of asset valuation terms

The deprival value approach to asset valuation is gradually being accepted by all of the groups and committees set up to investigate asset valuation for their own set of assets. It has, for example, been recommended by the Steering Committee on National Performance Monitoring of Government Trading Enterprises and is the preferred approach of the COAG Group reviewing asset valuation and cost recovery methods. Of the four basic reasons for valuing assets, it is likely to satisfy the needs of the first three, thus it will serve the needs of accounting and financial reporting pricing/ business viability, and performance monitoring, but it will not be adequate for taxation purposes, for which separate values will need to be kept.

*An overview of the deprival approach is set out below and the relationship of the deprival concepts to some of the numerous valuation terms now current is explained.*

The **Deprival Value** is the cost that an entity would incur if it were to be deprived of the asset and depends on what action it would need to make good the loss. (It follows that the deprival approach values assets from the viewpoint of the owner/operator rather than, say, a third party in the case of forced sale.) Deprival Value is not a valuation method itself, but rather a guide to which valuation method to adopt in different cases. There are basically three cases:

If the asset is needed for the ongoing operations and would be replaced in the ordinary course of events, the value of the asset is its replacement cost. The cost would be established by reference to the cost of a **modern equivalent asset**. If the asset would be only partially replaced because it has excess capacity, the appropriate modern equivalent would be a lower capacity asset, related to the current and future capacity needs of the entity.

(Asset valuations would only be written down for *unplanned* excess capacity. Where economies of large scale production make it desirable to have significant levels of *planned* excess capacity in order to achieve lowest unit cost supply, there would be no adjustment to the asset value.)

2. If the asset is needed for ongoing operations, but would not be replaced, the value of the asset is equivalent to the loss of future service benefits that would otherwise have been received. This is the **net present value of future economic benefits or cash flows**.

3. If the asset is not needed for ongoing operations but its surplus to requirements then the loss to the entity should it be deprived of this asset, is its **sale or salvage value**.

Most infrastructure assets would generally be considered necessary for the ongoing operations and would be replaced. Thus the **replacement cost** is the most common (and where replacement, as such, is not possible, the variant known as **reproduction cost**)

However, both replacement and reproduction costs relate to new assets. Most assets will be part way through their economic life and thus adjustment must be made for the service potential which has already been used up. It is necessary, therefore to determine the **residual value** or the **written-down value** of the asset. Where available, a **second hand market value** for assets of the same age, condition, etc, is a good measure of the written down replacement cost.

Once the current value of an asset has been established using the deprival value method, application of AAS10 may require you to write this amount down for financial reporting purposes if the expected net cash flows from future services are lower. **This is the Recoverable Amount Test.**

For performance comparisons, however, the deprival value without adjustment for the recoverable amount is required.

ASSET MANAGEMENT AND MAINTENANCE IN THE PUBLIC SECTOR.  
Gazebo Hotel. Sydney.

13-14 March 1995.

AIC Conferences.

for registration contact:

Telephone: (02) 210 5777 Fax: (02) 221 7773

**Five Case Studies!**

**Effectively Managing Assets through a Strategic Framework - A case study of the Royal Melbourne Hospital.** *Bill Geerlings, Director Facilities Management, The Royal Melbourne Hospital*

**Special Case of GTE's: The Need for a Consistent Approach to the Current Valuation of Assets.** *Geoff Haberfeld, Director of Finance, Engineering and Water Supply, SA.*

**Assessing Risk Management Throughout the Life Cycle of an Asset.** *Hugh Morris, Risk Manager, Administrative Services, State Transit Authority of NSW.*

**Asset Tracking - Prospect Electricity.** *Rohan Jones, Networking Strategy and Costing Manager, Prospect Electricity.*

**Victorian Department of Education. Selecting the Best Asset Management System.** *Andy Mieczls, Executive Officer, Property Management Unit, Victorian Department of Education.*

**Plus**

**Innovative Asset Management.** *Stuart Smith, Senior Consultant, Facilities Management Pty Limited (FMPL)*

**Valuation Methodologies for GTE's and Infrastructure Assets.** *Professor Bob Walker, School of Accounting, University of New South Wales.*

**Implementing a Holistic Approach to Maintenance.** *Graeme Lowe, Assistant General Manager, Business Development, Special Projects, Department of Administrative Services.*

**Maintenance Management - an International Perspective.** *Michael Avery, Senior Associate, Booz Allen & Hamilton (Australia) Ltd*

**Outsourcing - A Major Public Sector Function.** *Barry Lovat, Project Manager, Auburn Rolling Stock Maintenance Project, State Rail Authority of New South Wales.*

**Utilising Your IT Assets to Avoid Obsolescence.** *Helen Barnes, General Manager, Service Delivery, First State Computing.*

**Overcoming the Difficulty of Financing Infrastructure Projects.** *Alan Tesch, Director, Budget Division, Treasury Department of Queensland.*

**How Can Public and Private Sectors Work Best in a Partnership?** *Geoff Irwin, Opposition Member, New South Wales Public Accounts Committee.*

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**# Note there is no back page competition this issue because of the cumulative index but the competition will resume in the next issue.**