

Dr Penny Burns*

ASSET MANAGEMENT QUARTERLY

ideas and networking guide

**June 1995
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New Zealand AM Issue

**Audit NZ; BP (Oil) NZ; Christchurch City Council; Dunedin City Council;
NZ Post Properties Ltd; NZ Treasury;**

Editorial

Don't Just Do Something - Sit there!

In the perennial tussle between the thinkers and the doers, I must confess that I have always been impatient with those who want to get out and *do* before they have sat back and *thought*. They have been just as impatient with me!

I now realise that we are both motivated by the same goal - we want to avoid wasting our time. Since I have confidence in my ability to design a suitable operational system to meet any objective, *once I clearly know what that objective is*, I avoid wasting time tackling the wrong objectives by sitting back and thinking about it. The practical doers of this world do not want to waste *their* time thinking about objectives that may be "all very fine but not operational". So they first insist that I show them that *it can be done*; then, and only then, will they be prepared to consider whether it *should* be done.

Recognising our common pressures, I will try to get less frustrated next time I encounter this reaction. It showed up at the NCRB-BAMC seminar I ran on Condition Based Depreciation. The audience, over 100

strong, basically said "OK, we will accept your basic premise that this is worthwhile, but before we try to convince anyone that we should be tackling this, show us that it is do-able."

The early work done by the Estate Management Group of the Department of Urban Services in the ACT on developing - and costing - a pilot proposal for the introduction of asset management plans and condition based depreciation for the built assets of the ACT goes a long way to meeting this request. We will be reporting on this in a later issue, along with some of the exciting work being done in asset management planning and condition based depreciation in New Zealand (as a starter see pages 4-9 and p 19 this issue).

NZ also features in a new series commencing this issue on structural arrangements for AM - "Organising for Asset Management" - see pp 10-11.

Penny Burns

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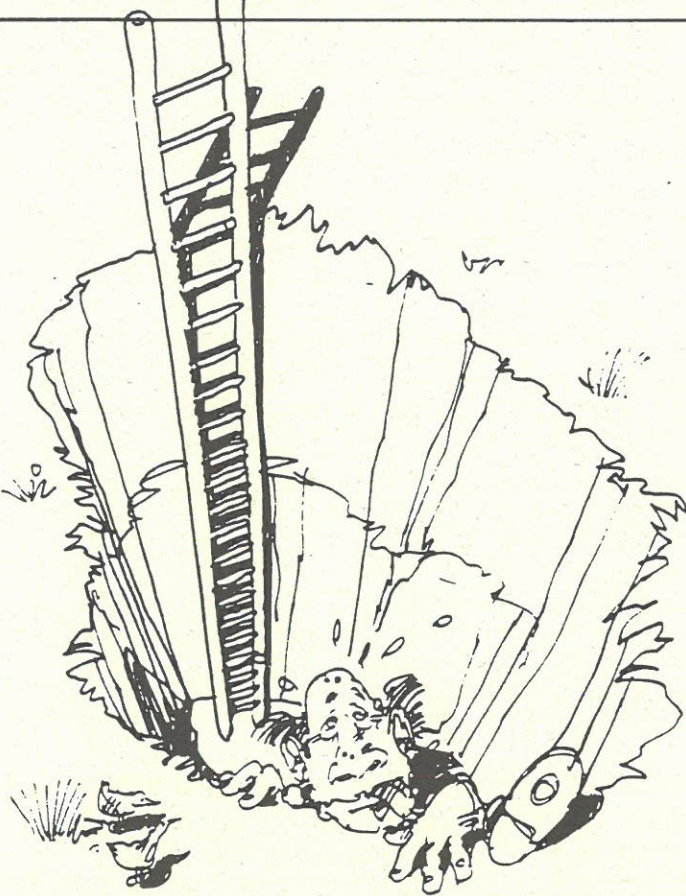
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Editorial Review Panel: Roger Byrne, Gutteridge, Haskins and Davery, Melbourne; Tom Crow, TW Crow Associates, Sydney.



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An analysis of AM interest to date shows the following reader interest:

Asset Management Plans	1	Configuration Mgt	1	Data Collection Mgt	1
Asset Registers	8	Renewals		Condition Assessment	11
Asset Valuation	8	Economic Lives	5	Benchmarking	9
Depreciation	2	Decay Rates	1	Best Practice	6
Maintenance Planning	16	Forecasting	5	Organising for AM	10
Funding	2	Demand analysis	1	Strategic AM	16
Asset Acquisition	3	Demand Managem’t		Accounting for Assets	3
Asset Disposal	1	Asset Performance	14	Utilisation	6
Bridge Management	1	Information Systems	2	Asset Risk Managem’t	1
Post Occupancy Eval’n	1	Concept Planning	1		

New Zealand Moves on Condition Based Depreciation and Asset Management Plans - Supported by the NZ Auditor-General's Office.

In its 1993 and 1994 report to Parliament, the Audit Office stated

"the ordinary depreciation approach to accounting for loss in service potential is generally inadequate for infrastructural assets. Depreciation based on actual deterioration is far more relevant than an estimated figure based on the projected life of the asset type."

In its draft statement on "accounting for infrastructural assets in local government", Infrastructural assets are defined as

"those stationary systems where the system as a whole is intended to be maintained indefinitely at a particular level of service potential by the continuing replacement and refurbishment of its components. The total system is therefore a network which can include normally recognised 'ordinary' assets as components."

Link between Asset Management Plans and Infrastructure Accounting (CBD) -

© Brian Smith, speaking at an AIC Conference in Wellington, said "An AMP is the foundation document on which the accounting for assets will be based. In other words the planned management of assets will drive the accounting for assets."

© The Audit Offices draft guidelines describe an infrastructure assets - ie those with an indefinite useful life - as follows: "An asset can be said to have an indefinite useful life when all of the following conditions are met:-

- ✓ The Council has formally recorded a decision to maintain the network in a defined and appropriate operating capacity by a

program of restoration to ensure that its useful life will be indefinitely prolonged.

✓ An appropriate Asset Management Plan has been adopted by the Council. This plan needs to provide reliable information on:

- the current physical extent, condition and capacity of the network; and
- the timing, extent and cost of work required to maintain and restore the network's defined operating capacity in future years..

✓ The level of service should be described in the Asset Management Plan."

In 1992-93 36 of the 84 Local Authorities in New Zealand had used some form of renewal accounting for some or all of their infrastructural assets, according to the Auditor-General's second report for 1994 - and the number is growing!

The AG considers that infrastructural accounting (with AMPs!) is consistent with SSAP3, the NZ Society of Accountants' Statement of Standard Accounting Practice No 3 - Accounting for Depreciation *if the useful life of infrastructural assets is considered to be infinite*. This, he is clearly disposed to do. "At present I accept either method of accounting. What is essential is that councils report any reduction in service potential, whether as depreciation or as deferred maintenance." (Second Report of the Auditor General for 1994) ©

Contact: Kevin Simpkins, Assistant Auditor General (Accounting and Auditing Policy) Tel: 64-4-471-6500 and Fax: 64-4-471 6545.

Depreciation is Front Page News in Christchurch!

Surely it is a sign of growing asset management awareness when depreciation rates page one notice! Such occurred in Christchurch the very day after I had spoken to the Council about their depreciation practices - but I hasten to deny any responsibility for the publicity!

In accordance with the new accounting standards, Christchurch City Council has revalued all of its infrastructure assets, land and buildings at depreciated replacement cost. The depreciation elements have been built into council charges which have increased significantly as a result. Naturally, not everybody is pleased, including Hugh Pavletich, the local BOMA representative, hence the following article in the *Christchurch Press*, in which he accuses the Council of using funds raised through depreciation charges for upgrading and extending the Council's asset portfolio.

"Council Policy of funding depreciation from rates had effectively distorted the cost of core services such as roads, water and sewerage by "massively increasing those costs in the future". said Hugh Pavletich, BOMA (Building Owners and Managers Association) Spokesman. "The council has defended the increased revenue it requires from ratepayers to carry out this essential work by claiming that enough money must be set aside to maintain the city's infrastructural assets" This meant in reality that additional revenue raised from rates and other sources such as dividends would be spent on enhancement projects and non-core activities rather than set aside to dedicated reserves or debt reduction. Mr Lineham (the Council's Finance Director) said that the Council's depreciation policy was not common practice and that BOMA was factually correct in this respect. "This should not be a criticism of the Council which has faced up to financing issues that many local authorities have chosen to ignore" Mr Lineham said."

Bob Lineham, Group Manager Finance points out that despite the criticisms, the Council's finances are soundly based. "The Council has adopted a financing philosophy of moving towards a breakeven operating account (including depreciation or renewals) to set a target for rating/revenue levels. The cash generated from

depreciation is utilised in the year it is generated as a revenue contribution to the capital (including renewals) funding. This approach was designed simply to set a lower benchmark for the mix of revenue and debt funding of "capital" works. There had been a tendency before this policy was adopted for the Council to move to increased debt funding as a means of keeping rate increases low. Requiring them to fund the consumption of assets was to introduce a discipline in funding." ©

This raises a number of issues! If depreciation charges over-recover on asset use so that funds are available for asset extension in addition to renewal then spending "discipline" may, in fact, be quite lax. On the other hand, if the depreciation charge is "correct", but the natural lumpiness of renewal means that not all is required in the particular period, then the philosophy of a balanced budget may lend itself to overextension of assets and a consequent failure to have funds available when renewal is needed.

Christchurch City Council intends to overcome these problems by moving away from depreciation to expensing renewal works once comprehensive asset management plans - now in process - have been completed. Renewals accounting according to Lindsay Moore, who reports to Bob Lineham, ©

- ✓ makes accounting for infrastructure assets easier
- ✓ removes arbitrary depreciation (both from the books and from charges!)
- ✓ gains greater acceptance with council members who are suspicious of the quality and accuracy of both economic lives and asset valuations, and
- ✓ is accepted (indeed encouraged!) by Audit New Zealand.

Bob Lineham says that there is still a lot of work to be done in the area of asset management plans and renewal accounting and the Society of Local Government Managers is developing guidelines for the use of this method.

AMQ will follow their progress with a great deal of interest.

Contact: Lindsay Moore, Accountant, Tel: NZ 3-371-1768, Fax NZ 3-371-1493

Dunedin - Gradings both "spur" and "focus" for Renewals Program.

A talk with John Brimble, Group Manager, Operations and Services, Dunedin City Council, NZ and a review of the draft discussion documents for public consultation on Dunedin's Water Renewals Program, provided a raft of interesting ideas that have application far wider than the renewal of water assets.

1. "Benchmarking provides spur to improvement".

Key to the renewals program was the revised water quality gradings determined by the Ministry of Health which had seen the previous "A" standards reduced to "Ee" where "E" refers to the treatment grading (the quality of water treatment) and "e" refers to the reticulation grading (the state of the delivery system). Gradings for all councils are public knowledge, an effective form of benchmarking.

2. "Grading system promotes equity".

The overall City grading is based on the lowest graded treatment plants despite the number of higher graded plants elsewhere in the City which gives considerable incentive to tackling the more serious issues first. *(Ed: A similar grading system applied, for example, to schools, hospitals, etc. could act to reduce the disparity between the good and the poor and act as a disincentive to spend maintenance funds on new assets!)*

3. "Grading provides focus for improvements"

(the following is an extract from the Dunedin City Council's discussion paper)

Steps Needed to Improve the Treatment Gradings

"Dunedin's provisional water treatment grading is "E" reflecting that at (three) .. sites the treatment is rudimentary...

To improve this grading to a "D" all plants would need to disinfect with chlorine at sufficient quantities and for long enough to kill Giardia. This requires prolonged storage after full treatment. There is not sufficient storage at those sites to do this, let alone full treatment. The highly coloured nature of the water is such that the chlorine will combine with the colour to produce undesirable chemicals (such as chlorinated organic by-products or THMs).

Thus it is not desirable to aim for a "D" grading as the water would probably be unacceptable in terms of taste, so the aim should be higher should Council wish to upgrade treatment plants.

To get to a "C" grading the "Drinking water standards of New Zealand" need to be met - that is to strip out the colour and dirt, probably by using a coagulation and filtration process similar to that at Ross Creek or Mount Grand. Improvements to the operators' skill levels and qualifications will not assist in achieving a "C" grading; major capital expenditure is required before other actions will improve the gradings. To assist the process, the raw water should be stored for some days to stabilise it before treatment. After treatment, as mentioned above, further storage is needed to ensure proper disinfection.

Thus major capital works are required, with consequential increased operating costs, to improve Dunedin's treatment water grading from an "E".

Once this (expensive) step is taken, it is relatively easy to get a "B" grading. A "B" grading can be obtained by either training the Chief Operator to gain an "A" grade "ticket" or by having continuous quality (monitoring) control. An "A" grading is gained by having both of the above. An "A1" grading is achieved by adopting quality control measures such as ISO9000 registration"

A great example of plain English on a not-so-easy topic!

Contact: John Brimble, see next page

Dunedin - Public Consultation and Peer Review.

Also worthy of note are two features of Dunedin's public consultation process.

- © (1) The *technical options* for improving water quality were presented as one discussion paper and the *funding methods* that could be chosen were treated in a separate discussion paper, thus avoiding the confusion that often occurs when technical and financial issues are intermingled.
- © (2) The technical discussion paper submitted for public consultation by the *Dunedin City Council* was subject to **peer review** by a local firm of consulting engineers.

The Peer Review concentrated on

- ✓ identification of issues because no issue can be evaluated until it has been identified
- ✓ the logic of issue evaluation with emphasis on the avoidance of prejudicial views
- ✓ the structure of the report with a view to incorporating explanations which might be helpful to the reader
- ✓ the defining of the elements which comprise the estimates

(3) There were two financial options papers produced. The first during the "public comment" period covered all possible ways/methods of funding. The second was released during the formal "public consultation" period and was far more detailed in its modelling, drawing the public and others to the conclusion that of all the various methods only three were probably economically viable. The final recommendations of the Water Review Team will now be critically evaluated by a firm of Chartered Accountants which will report back to Council. This is, in effect, also a "peer review".

Peer review does not only achieve a better product, it gives added assurance to ratepayers that all bases have been covered and therefore generates greater acceptance and an easier passage for its recommendations.

John Brimble may be contacted at the Dunedin City Council, PO Box 5045, Dunedin or on NZ 3-474-3736

New Zealand Councils Co-Operate to Develop Information Systems.

Whilst many local authorities desired to manage their utility infrastructure in a complete and integrated way, the goal often seemed frustratingly out of sight and, hampered by limited resources, progress was slow, reports David Dobbie, Services Manager, Christchurch City Council. That was until ALGENZ (Association of Local Government Engineers of New Zealand) co-ordinated a nation-wide approach. Under their auspices, a sub-committee of seven sponsoring councils developed first a mission, and then a strategy, for an "Advanced Asset Management System" for water, wastewater and land drainage services in New Zealand.

(Continued on page 9)

Three Examples of Successful Partnering Approaches to Maintenance Contracting

① 1. Generating Ongoing Commitment through Longer Term Contracts.

New Zealand Post Properties Limited in Wellington have awarded an annual contract with Programmed Maintenance Services(NZ) Ltd, an Australian Company, which involves a ten year programme, painting in the fifth year and cleaning in other years. NZPPL say that with this long term arrangement, the maintenance company takes pride in the general look of their properties, cleans off graffiti as it occurs and even advises on building site problems that are noticed in their rounds. "The Corporate Image is in good hands".

Contact: Ian Sullivan, New Zealand Post Properties Ltd, Tel 64-4-496 4999 or fax 64-4-496 4030

② 2. Using the Maintenance Contracts to Improve the Maintenance Information Base.

BP Oil (NZ) Retail Division reduced from two pump maintenance suppliers to one in 1993. In return, the contractor not only maintains the pumps but also provides information on exactly what pumps exist in the different locations, their make, model, age, condition and maintenance activity. This information is now provided weekly, on computer disc, to the BP main office for use in deciding which pumps are the most efficient and which should therefore be chosen when deciding on new pumps. This information is a costless spin-off from the maintenance activity! The relationship has been so successful that it is now being extended to include signage.

③ 3. Trust pays Dividends!

Suspicion that security call outs were excessive had initially led BP to contract another firm to monitor the first! This, too, was costly so they are now taking a partnering attitude. Already they have found that explaining their concerns to the company has resulted in a positive response and, while the new deal is not quite closed yet, it is expected to lead to reduced costs, improved service and a stronger partnership with the supplier - (they can be linked to BP's electronic mail to ensure instant updates on incidents, cash collection reconciliation differences, etc.)

Contacts for both 2 and 3 are: Craig Sheddon, BP (Oil) NZ
on 64-4-495 5743 or his manager, Richard Pither, on 64-4-495 5619

Christchurch City Council - Integrated Asset Information Systems for Councils

(Continued from page 7)

Key attributes that Algenz looked for were that the system:

- ✓ be of modular form
- ✓ include all the modules required to
- ✓ effectively manage the key life cycle functions of the assets
- ✓ operate across a range of hardware platforms using common industry standard operating systems
- ✓ operate on multi-user and stand alone PC systems
- ✓ be capable of interfacing with other corporate applications such as GIS, financial systems, property and customer records and hydraulic network analysis packages
- ✓ and contain a powerful report writer.

70 of the 74 local authorities fronted up with money to investigate a common system. 31 have indicated that they will buy before June this year and 50 have placed firm orders. Because of this bulk ordering, the NZ councils have



a substantial discount on the price and a help desk to ensure councils have no trouble in implementation



a common information base for future benchmarking, and



an opportunity to avoid the frustrating and costly expense of having to bring new recruits "up the learning curve", each time an operator makes a career move to another council. Since most promotions and movements of staff are to other councils, the common knowledge base will go with them - no relearning!



Furthermore, the large number of outlets using the common system give them the power to commission improvements which would be

beyond the financial scope of any individual agency, so they can choose the best elements of other systems and have theirs upgraded. This keeps the users happy. And the vendors are happy too, since it keeps them at the leading edge.



The successful vendor was Melbourne Information Technology Services (MITS) as Australasian agent for Hansen Information Technologies (Inc.). The system has already been trialled on a large council (Christchurch) and an average sized one (Rotorua) thus proving that it can work well in each. So far, everybody is most enthusiastic and the belief is that, while designed to cope with the problem of pipes and sewers, the system is flexible enough to cope with all of their infrastructure requirements.



Incidentally, other measures included the consultation of Audit New Zealand to ensure that the project moved towards meeting audit requirements.

New Zealand has a population about the size of Melbourne - so the benefits are potentially available to any one Australian state acting consistently across its own territory, without initially concerning itself with the greater difficulties of intra-state co-operation.



Contacts are:

David Dobbie, Services Manager,
Christchurch City Council, (Tel:64- 3-379 0550)
(Fax::64-3-379 803) or Antony Wilson,
Public Health Engineer, New Plymouth
District Council Tel64-6-758 8099, Fax 64-6-758 3257
or (in Australia) Reg Leonard of
MITS.(Tel: 61-3-613 9444) for information
about the system chosen

Property a Cost Centre - Australia Post

Assets: \$1.5b of assets are in use in core services, of which about \$1b are owned by Australia Post. There are 1700 properties.

Asset Management Arrangements:

The Group Manager (Property) has responsibility for all owned and leased property and a staff of 90 (reduced from 160 only a few years ago). He reports to the Managing Director.

As of July 1st 1995, property management will be a separate cost centre, the Property Division, with its own balance sheet and rate of return targets. Two documents spell out the basis of the property arrangements - the "Principles of Understanding" which is an umbrella document that spells out the framework (user pays rents based on market prices, charges, conditions) and the Service Agreements (which are commercial contracts between the core businesses and property management). Rents are set by independent valuation. If a tenant is dissatisfied with the service provided there is a dispute process. It is, however, in the interests of all that the disputes be resolved quickly and amicably, to avoid the issue being taken to the Managing Director, and this should ensure that "the right thing" is done by all.

The Property Division has three roles: landlord (wrt owned buildings); agent (wrt leased properties) and corporate management. Property has to be managed in the interests of Australia Post as a whole. To this end the Property Division uses the Harvard Business School's "Balanced Scorecard method" for ensuring that all interests are met.

Australia Post asked themselves the question "What do we require of our property management function?"

- (1) to increase competitiveness of the core business
- (2) to increase the wealth of the corporation
- (3) to make a financial contribution to the corporation's trading profits
- (4) to be a more responsible citizen with respect to environmental and heritage matters.

The current arrangements have been worked out over a period of three years and has involved extensive discussions with core businesses. The upshot is a two part process. There is the "Property Development" part (including a subsidiary company "Postcorps Developments") with responsibility for projects (constructions, enhancements). Once the project is completed, it is handed over to the second part of the process "Property Management" who are responsible for operations and management (including finance and administration). The role of property development is to increase revenue and the role of property management is to reduce costs!

Contact: Peter Lavis, Group Manager, Property on 61-3-9204 7808, or fax 61-3-9204 7211

Organising for Company or Cost Centre?

Property as a subsidiary company - New Zealand Post and New Zealand Post Properties Ltd.

Assets: Buildings and some specialised mail service centres with a balance sheet value of \$230m.

Asset Management Arrangements. NZ Post Ltd set up NZ Post Properties Limited (NZPPL) as a separate company in 1990 to manage/maintain its portfolio of properties under a six year management contract. The Board of this company comprises the GMs of NZ Post Ltd and it reports to the Board of NZ Post Ltd (which are all external members appointed by Government).

NZ Post Ltd is a State Owned Enterprise. The Head Office for NZPPL is in Auckland and there are branches in Wellington and Christchurch. Staff size is 24. Strategic direction is heavily influenced by the financial considerations of both NZ Post and NZPPL, and the company has a "bottom line" emphasis.

Notional rents are charged to NZ Post tenants which makes them aware of the total cost to run their business. The rental is assessed by a registered valuer and reviewed every three years. Should they downsize the rental must still be paid until NZPPL can find another tenant - so they co-operate in this task!

NZPPL also rents to non NZ Post tenants and negotiated rents are based on asset valuations as well as other factors apply. NZPPL's task is to maximise occupation, rental revenue and to be 'entrepreneurial'. Examples of the latter include the leasing of roof space for specialised antennae to external communication companies and the fitting up of franchises whether in former postshops as a tenant or the franchisee's own premises. Developments of the properties are also encouraged.

When asked what he was most proud of, *Ian Sullivan, Wellington Branch Property Manager of NZPPL*, spoke of the overseas search for the technology to construct an open space design mail centre of 6,000 sq m and with vehicle interchange of 3000 sq m. The flexibility of this design, without its constraining intermediate walls or supports, has already accommodated at least three to four changes in configuration as technology has developed. (The alternative was to stick with old technology or move!)

Contact: Ian Sullivan, tel: 64-4-496 4999; fax: 64-4-496 4030

Asset Management

Diffused or Centralised?

Marketing is the Driver for Asset Management in BP (Oil) in both Australia and New Zealand!

BP (OIL) Australia

Assets Written down value (historic) of \$1.2b is mainly land and buildings (depots, terminals, service stations) and two refineries.

Asset Management Arrangements

There is no one "asset manager" as such ("We like to encourage everybody to think of themselves as an asset manager in some respects.") but strategic asset management (which new assets to acquire, where, which to dispose of and which to upgrade) is the responsibility (wrt retail assets, ie service stations) of the Network Planning Section in Head Office. Network Planning reports to the General Manager (Marketing). For Terminals and Distribution, Head Office makes the strategic decisions. For the Lubricants and Bitumen Businesses, SAM decisions are made by the managers of the plants - subject to them putting up a strong enough case to HO to justify funding!

Recent and Planned Changes

Asset management was subjected to a review focussing on the determination of accountabilities and responsibilities. (This was undertaken in co-operation with BP (Oil) NZ). The review (see AMQ2 and AMQ3) was completed in Sep 94 and implementation is now underway. Future changes include the development of improved systems for engineering and maintenance management. The latter will enable better asset management through the analysis of maintenance data, some of which has been collected for several years but never fully analysed.

Contact: Peter Allwinton, 61-3-9268 4806

BP (OIL) New Zealand

Assets Approx \$300m in land, pumps and service station merchandising assets, signage, etc. Mostly retail end users but also terminals and trucks which are wholesaling infrastructure.

Asset Management No special designation of Asset Manager or similar. Acquisition, disposal and maintenance decisions are made by Business Managers (each of whom are responsible for a group of 15-20 service stations) who report to the three Regional Managers. These are all marketing positions, sales managers who report to Sales and Marketing in Head Office so that, in effect, asset management is driven by sales.

Changes (Recent and Planned) Recent: Last year the company undertook an asset management business process ('reengineering') exercise focussed on the streamlining of accountability, capital investment approval and implementation processes. This was done in collaboration with BP Oil Australia. Planned: An asset register verification. Asset management tools are being developed in Australia.

Tony Hunn, Asset Process Engineer, said that "Five years ago few people thought about assets, they were just there. Company focus was on sales, *now it is on return on assets.*" When asked what advice he would have for other asset managers, he replied. "Before attempting benchmarking - Get your own requirements straight."

Contact: Tony Hunn, Asset Process Manager, BP Oil, Wellington NZ 04-495 5766

For the New Asset Manager - Life Cycle Asset Management

*by Ray Colville, Masters Student, Masters in Technology,
Deakin University*

The life cycle of an asset begins with the conceptual design and moves through to the disposal of the asset. This applies to all assets from pipes in the ground (civil assets) to generators and engines (mechanical and electrical assets).

The first stage in the asset life - conceptual design, research and development, and the evaluation of options - is critical to fully optimise future reliability, availability and utilisation of the asset. Tools of analysis include break-even analysis, life cycle cost analysis, breakdown and sensitivity analysis(1).

The second stage - acceptance, operations and maintenance - is the important data gathering phase. Information from this phase relating to costs of maintenance, operation, logistic support, failures, repair times and condition monitoring forms the basis for further analysis and design changes.

The use of work management and maintenance systems can greatly assist in gathering and managing information and increasing operational effectiveness.

The use of analysis tools such as Reliability Centered Maintenance (RCM) (2) and 'Relcode' (3) provides information on characteristic life, mean time between failure, availability, modes of failure, causes and consequences of failures. This information can assist in further analysis and correlation on environmental influences and conditions, ie soil type, high temperatures, vibration, etc. It may assist to segment the asset into smaller processes or systems comprising a group of asset items to monitor and effectively evaluate critical components of the asset.

Costing information gathered through this stage provides the basis for upgrades or total system replacement. (4) The calculated or

perceived risks and the economic implications of making changes, upgrades or rehabilitation can be readily assessed, with reliable operational information.

The third stage is phase-out and disposal, however consideration is given in the stage one design stage to asset disposal. Such factors as the logistics required in the disposal, environmental effects, ease of removal/replacement, resale or the cannibalisation of the asset for spare parts can be evaluated.

The economics at each stage should be adequately accounted and this is the role of the information systems employed. Too often assets are purchased without consideration of the asset life cycle aspects such as component reliability and maintainability, resulting in higher maintenance costs and loss of inherent availability. Too often, also, information systems are put into place without defining what information is important. Clear definitions of terms, for example the difference between planned and unplanned maintenance (5) is important to ensure that users and recorders of information are consistent.

1. B Blanchard, *Logistics Engineering and Management*, 3rd Ed. Prentice-Hall, NJ
2. J. Moubarray, *Reliability-Centered Maintenance*, 1991, Butterworth Heinemann, UK and A. Smith, *Reliability Centered Maintenance*, 1993 McGraw-Hill, USA
3. RELCODE software developed by Dr Hastings and Dr Jardine available from Albany Interactive, Victoria.
4. A.K. Jardine, *Maintenance, Replacement and Reliability*, May 1987, Pitman Publishing, Canada.
5. Refer *Maintenance Management Terms In Terotechnology*, British standard 3811, 1984, British Standards Institution.

Contact: Ray Colville, 61-8-204 2111 (*Ray's course is organised through the Institute of Engineers*)

Valuation of Land Under Infrastructure: A Solution that meets the needs of Highways and Council Roads

Philip Blake, A/Planning Engineer, Infrastructure Planning, Department of Transport, SA, writes, a propos of the article on page 10 of the last AMQ (AMQ5),

"In following the debate from a distance, it appears that the arguments for and against the inclusion of land value in the valuation of infrastructure are very black and white; either the land should be included in the valuation or it should not.

However opposing points of view seem to revolve around whether the infrastructure is principally providing access or services to abutting properties, versus providing for arterial or trunk movement of traffic, energy or other commodities.

In the former case the values of abutting properties are raised by virtue of the access and services directly connected in, and as such the road reserves are intrinsically linked to the properties; in new housing estates land prices naturally include a component covering the land required for infrastructure provided by the developer. This indivisibility of property value from the access and services provided renders the road reserve unsaleable in itself.

In the latter case, the passing of arterial traffic or commodities in a road reserve (or any reserve for infrastructure) is independent from properties with a common boundary where vehicular access or access to services is denied as a matter of policy (eg, high speed, high voltage, etc).

In some cases this land has been reserved for long periods prior to the infrastructure being constructed. This represents an opportunity cost, as the land may otherwise have been developed. In other cases land is acquired, representing a real project expenditure to provide the infrastructure. Ostensibly the right-of-way is saleable if the arterial or truck infrastructure facility is no longer required.

Consequently two alternative "shades of grey" solutions are suggested, using road infrastructure to illustrate.

1. Land should only be included in the valuation if the purpose of the road is purely for transport, and access is denied to adjacent properties. (eg, freeways and controlled access highways).

or

2. As in 1. above but also where access is provided to properties and the width of the road is substantially more than the two lanes nominally required to provide vehicular access, the land under the additional lanes should be included in the value of the road. The premise here is that the road could be narrowed and surplus land sold if the arterial function is no longer required.

Either would mean that

the vast majority of Council controlled roads would not have land included in the valuation,

but State controlled freeways would have land included.

In the second alternative, many State controlled urban arterial roads would have at least a portion of the land included in the valuation.

Under either alternative, the financial information for land under infrastructure pertains to what can actually be managed, and the sale, or retention decision can only be managed if the land is actually saleable. This is in line with the criteria for recognition of non-current assets being "control".

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Constructing Benchmarks

Benchmarking or Best Practice?

Originally a surveying term for a point of reference, the notion of benchmarking as it has been adopted today by many manufacturing firms, as well as public agencies is really the notion of finding and implementing best practices. In fact, today, we find the terms "benchmarking" and "best practice" used interchangeably.

Questions and Answers.

The focus has also changed. In the earlier "performance indicator" literature, the term benchmark meant a target or reference against which the chosen performance measure was rated in order to come up with an answer to the question, how well is the company performing? Once it was recognised that one indicator by itself could not be relied on to give a reliable answer, that performance indicators needed to be used in sets and, furthermore, that some degree of expertise was necessary in order to interpret the answers, the level of interest fell away. Now it has been revived, but for performance measures that raise questions, rather than provide answers.

Benchmarking can be an "Inside Job".

If your organisation has many similar activities, benchmarking can usefully start at home. In BP Oil, "Terminals and Distribution" have been benchmarking worldwide but only within BP. The refineries have been benchmarking against all other refineries, BP and others, but the comparisons have been confined to refineries. Both are inside jobs. One inside the company, the other within the industry. Comparisons are also possible across industries, however, those who have tried, recommend "knowing thyself" before going too far afield.

Constructing your own.

An understanding of the basic building blocks is useful for comparison measures. Whereas measures based on *outputs* are essential for *control* purposes (because input ratios can be manipulated so easily!), input ratios *used to generate questions for management improvement* can be extremely valuable and, quite often, they form the bulk of the benchmarking/best practice observations.

Flows and stocks.

Inputs and outputs are called "flows" as they relate to the activities carried out (or that 'flow') over a period of time, eg a financial year. Maintenance, Depreciation and Opportunity Cost are flow concepts, they are measured as so many dollars *per period*. Asset values, on the other hand, are "stock" concepts. An asset value relates to the value of a stock of assets *taken at a particular point in time*, usually June 30th. Total Replacement Value (TRV), Depreciated or Written Down Replacement Value (DRV) and Market Value (MV) are all stock concepts.

There are four basic types of "flow" benchmarks:

- *output to output ratios (eg knee operations as a percentage of total separations)
- *input to output ratios (eg capital usage costs/ weighted separations)
- *input to input ratios (eg maintenance as a proportion of capital usage costs)
- *output to input ratios (eg hospital separations to capital usage costs)

Stock ratio benchmarks.

There are ratios of stocks to stocks, as well as ratios of flows to flows. DRV/TRV is a stock to stock ratio. (DRV/TRV), on the other hand, is a flow concept. There are also ratios of flows to stocks - the rate of return on capital is a flow to stock ratio, and ratios of stocks to flows - eg capital intensity (measured as the ratio of capital stock to annual revenue).

Output and Input ratio benchmarks.

Output to output ratios will of necessity involve either partial outputs to other partial outputs (eg ratio of knee operations to brain operations on some standardised measure) or partial outputs to total outputs (knee operations to total operations). Input to input ratios will do the same.

It is useful to note that

- as capital is an input and not an output, there are no output to output ratios involving capital costs
- asset values refer to stocks, and
- the relevant flow concept is depreciation or some measure of the using up of capital.

Some Suggested Benchmarks

Benchmarks should have a "rationale" - ie the pupose of each should be clear. Below are some suggested benchmarks which might be of use to asset managers or prepared by asset managers for general use.

Condition

DRV/TRV (Depreciated replacement value/ Total Replacement Value)

an indicator of "condition"

(DRV/TRV)

an indicator of changes in condition

Mtce/TRV (Maintenance/ Total Replacement Value)

*an indicator of maintenance effort related to size of capital stock**

Capital Intensity

TRV/ Numbers of Employees

*an indicator of the capital to labour ratio**

TRV/ Measure of output

*an indicator of capital intensity of output**

TRV/ Number of Beds

*an indicator of capital intensity of input**

TRV/ per square metre

*another indicator of capital intensity of inputs**

Capital Investment

Replacement \$ as a percentage of total capital investment \$

Upgrade or Enhancement \$ as percentage of total capital investment \$

Extension \$ as a percentage of total capital investment \$

indicators of the relative renewal/upgrade/extension effort

Capital Growth

Replacement \$: (DRV)

New (Enhancement and Extension) \$: (DRV)

New Capital as a % of Capital Stocks : Expected growth in demand %

*indicators of the impact of capital investment on capital stocks
and future service demand*

Usage

Depreciation (both as total average and average by asset class)

indication of the annual usage costs of capital

Cost of Capital (Maintenance + Depreciation + Opportunity Cost) /

Weighted Measure of Output

indication of the cost of capital per unit of output



Note: TRV is a better indicator of size, complexity and capacity of an asset, whereas DRV is a better indicator of value - horses for courses! It will often pay, however, to do some cross tabs.

In the Literature.

As befits our special issue on New Zealand, this literature selection focusses largely on NZ publications.

In the journals—

Renewals Accounting. An examination of 25 of the larger city and regional councils in New Zealand in early 1994 showed that renewals accounting of some kind was used by nine organisations, including six city councils, two regional councils and the Wairarapa Electricity Limited. Of these nine, five also recorded a provision for maintenance. Organisations using renewals accounting showed their infrastructural assets at a variety of values - optimised replacement cost, replacement cost, indemnity value and cost. The approaches used by the remaining entities also varied considerably. Depreciated replacement cost was chosen by 12 entities. All except one also charged depreciation. For further information see *Chartered Accountants Journal (NZ)* July 1994, pp 35-39 "Accounting for Infrastructure Assets" by David Hay.

Transfer Pricing. Transfer pricing techniques used in 77 of the top 200 NZ firms are described in Manzarul Alam and Zahirul Hogue's "Transfer Pricing in New Zealand", *Chartered Accountants Journal (NZ)* April 1995, pp 32-35.

Asset Management. J.L. Staley, in an article "Investments in technology through technology asset planning" in *International Journal of Technology Management* (Switzerland) 5, 6 1990 p.627- 638 defines technology asset management as a set of processes linking science, engineering and management disciplines, aimed at maximising returns from existing assets and planning and developing new assets to accomplish corporate strategic and operational goals. Identifies the basic content of an asset plan - a series of checklists.

Government Reports—

NZ Treasury: **Purchase Agreement Guidelines with Best Practices for Output Performance Measures.** April 1995. Contains background

information and examples of purchase agreements, plus a forty page appendix on best practices for output performance measures.

NZ Treasury. **A Guide to the Management of Departmental Fixed Assets.** (no date) 32pp. Fixed asset acquisition planning, fixed asset management, and net present value evaluations.

NZ Report of the Controller and Auditor-General. Second Report for 1993. pp 31-46, "Management of Physical Assets" (in which the departments with and without asset management plans is classified by size of asset base; overall 29 departments had AMPs and 12 did not)

NZ Report of the Controller and Auditor-General. Second Report for 1994. p24- 31 "Reporting the Cost of Capital", a discussion on opportunity cost and pp32-36 "Accounting for Infrastructural Assets"

NZ Report of the Controller and Auditor-General on The Financial Condition of Regional and Territorial Local Authorities. December 1993, which includes a section pp 30-35 on "assessing and monitoring the condition of physical assets". The results of the assessment of local authorities are reported.

And Academic Reports —

Cultural and Heritage Assets

"The Financial Value of Cultural, Heritage and Scientific Collections: An Accounting Fiction"

In this report, the keynote address delivered at the International Conference on the Value and Valuation on Natural Scientific Collections, University of Manchester, UK, April 1995, Professors G.D. Carnegie and P.W. Wolnizer, of Deakin University, survey valuation practices in Australia, NZ, USA, the European Community and Canada and argue that it is not technically proper to recognise cultural, heritage and scientific collections as assets for financial reporting purposes. Available from the authors, c/- School of Accounting and Finance.

Highlights of the CBD-AMP Seminar, Melbourne, June 6th 1995

Condition Based Depreciation Defined: an annuity over a projected cash flow required to maintain the functionality of the asset.

Problems of valuing such assets, calculating the planning period, comparing the results with standard depreciation practices, and preparing the forward cash flows were addressed by the speakers.

Russell Balding, Director Finance, Road Traffic Authority, NSW. Fax 61-2-218 6176

Valuation of Assets at "Written Down Replacement Cost" "The underlying philosophy of the Authority's approach to the valuation method for its infrastructure was to assess the written down replacement value. Our strategy was to assign a value to the road equating to what it would cost to replace that road to its current condition without improving the road. In other words, to estimate the cost, in today's dollars, to reconstruct the road in its entirety to the same alignment, standard and width as the existing road and then to write down that cost, after taking into account an allowance for the current condition of the existing road. This approach has been reviewed and assessed each year as to its continued relevance. We are still to come up with a better approach."

David Watson, Manager, Assets Assessment, Office of Water Reform, Victoria Fax 61-3-412 4360

David outlined the effect of using a CBD approach in the newly restructured irrigation industry in Victoria. He showed the effect of taking different planning period lengths on the variability of the annual depreciation charge. Except for a very new system, the difference between a 30, 40 and 50 year planning horizon was not significant in terms of general smoothness, and they have opted for a 30 year planning horizon.

Helen Marsden, Strategy, Policy and Programming Branch, ACT Dept Urban Services. Fax 61-6-207-6245

CBD is a systematic approach to condition assessment akin to the valuer's approach. Helen gave a number of examples of the difference between a "true" estimate of written down replacement value, as estimated by a valuer, and compared them with the traditional straight line WD valuations to show that traditional depreciation heavily

understates the residual value, eg. a school with a current replacement cost of \$5.68m was valued by the valuer at a WDRC of \$2.58m whereas the straight line depreciation method would have valued it at only \$1.42m

Helen outlined a pilot study for testing the application of CBD and asset management planning to facilities in the ACT. She briefly described the information requirements and an estimate of the time it would take to gather the necessary data.

Roger Byrne, Manager, QA&D Fax 61-3-600 1300

Roger looked at the information required to put together the Asset Management Plans. He considered the appropriate hierarchical breakdown of assets for planning purposes, the physical attributes requires, the current condition, environmental impacts and service impacts. He demonstrated an example of an asset condition assessment scoring system. In Roger's opinion, a planning period of 25 years is more than appropriate in the rapid changes that are occurring in both the business environment and in the new technology that is becoming available,

David Hope, Principal Consultant, Skilmar Systems Pty Ltd Fax 61-8-346 4345

David highlighted both the advantages and the difficulties yet to be resolved with CBD, the major one of which is that CBD does not take into account technical or commercial obsolescence. The RTA make a separate allowance for obsolescence because of this. Another difficulty is the projection of maintenance and renewal activity over a time frame that is often longer than an individual's working life in the job, certainly in many cases longer than the residual time in the job. In essence, of course, this is no greater than assessing the economic life of an asset, and in practice, may be considerably easier for assets that have nominal lives in excess of 50 years and more. The third difficulty mentioned was lumpiness of asset renewals. This is a difficulty that makes the choice of planning horizon quite important. In general, the larger the lumps relative to the norm, the greater should be the planning period. David, in effect, set the research agenda.

Discussion.

Major issues raised included the length of the planning period, the size of the discount rate, the degree to which assets and asset subcomponents needed to be detailed, -----and a plea for some more operational guides!

THE ACME RADAR BLANK PLANE COMPETITION ENTRIES

Our competition in the last issue, you will recall, had the Acme Airline Company in a dilemma. It wanted to know whether it should invest \$1m of its research money in developing a plane that could not be detected by conventional radar. Complicating the picture was the fact that another company had already begun marketing such a plane and it was clear that their plane was faster and more economical than the one which Acme could produce. Should Acme spend the \$1m research funds on this project? Two scenarios were presented. In Scenario (a) the company had already invested \$9m in this research project. In Scenario (b) they had not. What would you recommend in each case? In 25 words or less for each answer.

Essentially this case was set up as an exercise in ignoring sunk costs. Since the \$9m had already been spent, the textbook answer is to consider only the benefits and costs of the extra \$1m. The textbooks would say that the answer was the same in both circumstances - ie the \$1m should only be spent if the benefits are greater than the (marginal) cost, ie if the benefits are greater than \$1m.

However, as the answers showed, real life is generally more complicated than the textbooks. It was great to see so many entries and such a variety of response. Rather than try to adjudicate, I have chosen four of the entries that represent the flavour of the response. The prize of six premium SA reds goes to the first response received - that of P.Upton. The winner of the draw for the AMQ is G. Harley. Congratulations. And thanks to all.

Competition Entries:

(a) No, not unless the million dollars investment will result in an acceptable return. Disregard the \$9m as it is a sunk cost

(b) No, the funds should be used to research and build a plane which is better than its competitor. They should learn from their competitors' products. *P Upton. SA.*

(a) Yes: Market should support at least two acceptable alternatives. Remaining \$1m should be applied to turn the 90% investment into at least an acceptable alternative

(b) No: Without any investment expenditure Acme is aware that it cannot match its competition. Acme should invest its \$1m on other projects having market potential. *G. Harley. ACT*

Consult ACME marketing department, identify niche markets where speed and operating economy are not paramount.

If >1:8.9 that market exists:

(part A) commit funds; ie $EV = \text{sunk cost} * \text{risk factor} (0.112 * \$9m) > \text{new K}(\$1m)$

if > 10:10 that market exists

(part B) commit funds, ie $EV = \text{known cost} * \text{risk factor} (1.00 \$1.0M) > \text{new K} (\$1.0m)$

B. Leane. ACT.

(A) After spending \$9m, team morale would be shattered if there was no production, therefore look for a niche market where return at least exceeds the extra \$1m.

(B) Only proceed if the expected returns from a possible niche market generate the company's standard return rate on \$1m.

W. Laker. Vic

Capital Charges Encourage Sales of Surplus Assets.

One of the forces encouraging asset sales in New Zealand departments is the application of the "capital charge". This charge is levied on departmental taxpayer funds or net worth. If the department is not permitted to dispose of a particular asset that it uses in its operations, that asset is not listed on its balance sheet.

Capital charges need to be seen in the context of departmental funding. New Zealand departments receive their funds by way of "purchase agreements" with their Ministers which specify the amount and quality of services to be provided during the year (and also the standards against which their performance will be measured to ensure that they have lived up to their contract.)

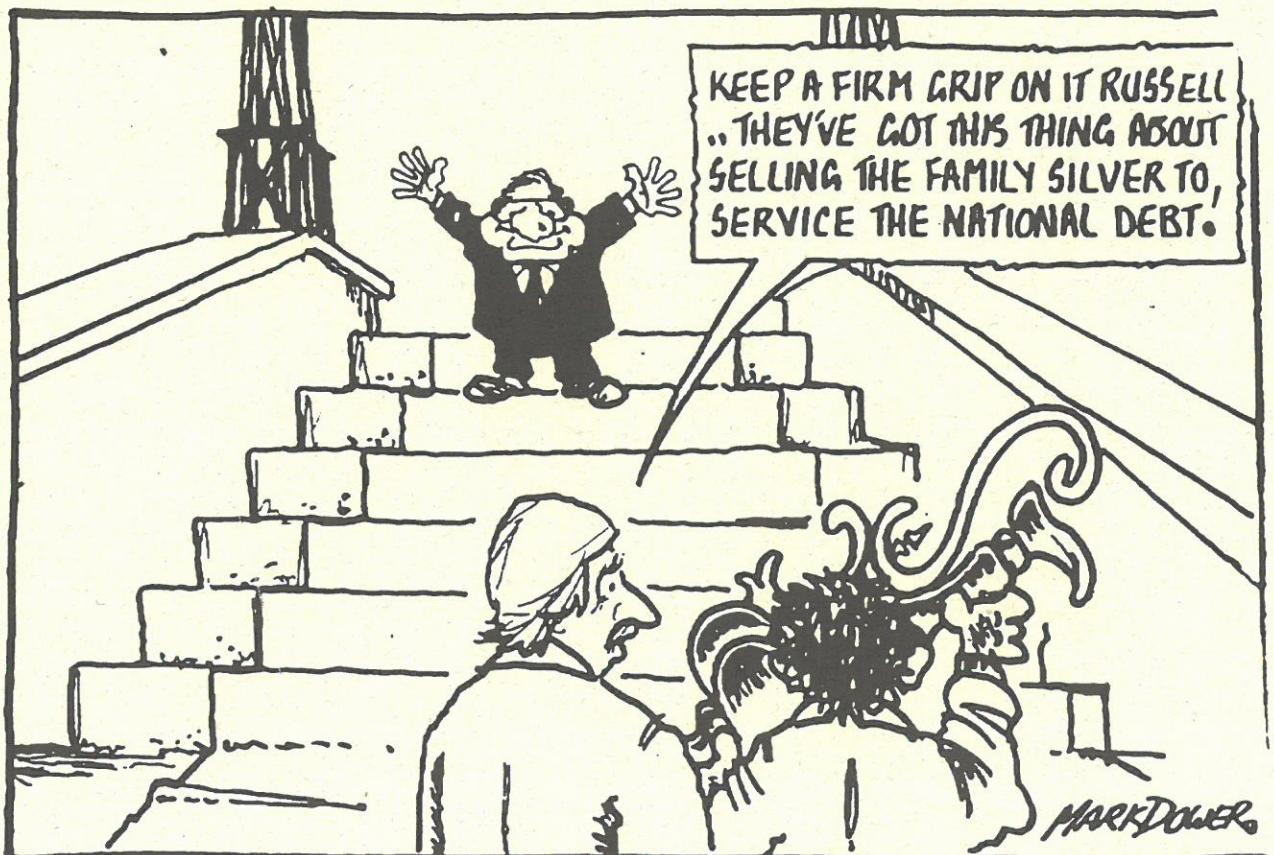
The capital charge is determined annually on the

basis of the weighted average cost of capital. (The charge in 1995-96 is 11.5%, last year it was 9.9%.) Departments can choose to have another cost of capital if they consider that the risks that they face are substantially different to those incorporated in the general figure. Rates are notified 6-7 months in advance. As long as the department fulfills its contract, its revenue is not affected by the sale of surplus assets. Its costs, however, reduce through a lower capital charge. (Departments do not keep the gains on sales of surplus assets.)

The capital charge is expected to make departments more aware of their assets and to encourage them to dispose of those that are not "pulling their weight". (Contact in the NZ Treasury is Fiona Beck, Tel: 64-4- 471 5273; Fax: 64-4-499-0143)

End Note: The following cartoon appeared during the victory celebrations for the Americas Cup Team in Wellington. It is reprinted for your enjoyment with the kind permission of the cartoonist, Mark Dower, and the Wellington Dominion.

Welcoming the Victorious Americas Cup Team in Wellington!



Back Page Competition

"Benchmarking! Theory is all very well, but what I would like to see is somewhere where it is actually in use, operational, up and running!" The Chairman thumped his fist on the table. "I am not seeking perfection, just something practical."

To win this competition you don't really have to do anything - just send in some information on some benchmarks that are actually in use in your agency or industry or council. Of course, if you should wish to comment on them - what has worked and what hasn't, where you are looking to make changes, so much the better. But essentially, the aim is to get some information on the table.

Is there anybody out there who has actually done some benchmarking and is prepared to help others get started? If so, send it in and win yourself six bottles of our absolutely delicious premium South Australian reds - and the gratitude of your fellow asset managers!. Postal address: AMQ Competition, 21 Lynne St, Brahma Lodge, SA, 5109, Australia and Fax 61-8-281 5795. Entries due in by Sep 5th 1995.

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