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ASSET MANAGEMENT is a never-ending quest.

How the story began

A word of explanation

This story of how asset management began is told in five parts: each one reflecting the role I had at the time, the opportunities it presented and the questions that arose as I related the work to changes that were happening at that time. Each part covers approximately two years in the period from 1984 to 1993. The first two chapters in each part deal with the questions I explored at the time. These are followed by two chapters “Reactions” and “Moving On”, which look at some of the things that happen when you are happily trying to change the world.

Coming Next: _ASSET MANAGEMENT, the quest continues: *The story to the present.*

This is where we continue the story with the involvement of asset management practitioners from around the world.

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Part One:
April 1984 to February 1985
The Engineering and Water Supply Department

Chapter One: How the story began

In 1984, almost all infrastructure services were provided by government, either through statutory authorities or budget dependent departments. Where prices were set, as for water and sewerage, they were determined politically or to achieve a given policy. They were not based on costs. They couldn't be. We didn't know them (although we thought we did). This was as true of water as of other services. So it was that asset management started with a simple question, asked of the EWS:

Question 1: How much does it cost South Australians to get their water services?

This is how it happened.

It was April 1984 and we were listening to an announcement by Don Hopgood, the Minister for Water in South Australia, who had just declared that he was going to charge irrigators what it cost to supply water to them. Instinctively I said, "He can't do that!"

"Of course he can," my corporate planning colleagues replied. "He's the Minister, he can do anything he likes."

"I didn't say he wasn't *allowed to*. I just said he *can't*. He doesn't have the information. WE don't have it to give him. We don't have any capital costs and even our recurrent costs are dicey."

At that stage I had been with the EWS, South Australia's water authority responsible for the entire state, for about 15 months. For that time I had been working mostly on irrigation issues such as river salinity, water allocations and transfers.

It suddenly struck me that I hadn't worked much on costs or prices, which, given that I am an economist, might have seemed rather strange. However, it hadn't been necessary: water prices were set politically, or to achieve policy ends, but they had never, at least until this announcement, been based on costs.

Sign of things to come

What I didn't know then was that this decision by the Minister for Water was a harbinger of major changes that would spread across the public service over the next ten years. The full costs of infrastructure were beginning to be identified as the post war boom in building infrastructure transitioned to the management of that infrastructure. Continued expansion wasn't sustainable, we didn't have the money.

Margaret Thatcher in the United Kingdom of England, Scotland, Wales and Northern Ireland (UK) and Ronald Reagan in the United States of America (USA) had restructured their economies in ways inspired by Milton Friedman's monetary theory. In doing so, they looked to transferring costs onto users and other beneficiaries. This was now affecting Australian policy.

It is impossible to understand the development of asset management in the absence of an understanding of this pivot point in economic policy. The private sector felt it could no longer expand its market share by innovation. Instead, it began to look to expand into the well-funded public sector. Its advocates argued that private sector entities were better managers and argued for government trading enterprises to be transformed into self-funding corporate bodies. This then presented an opportunity for private sector entities to acquire public assets that were seriously undervalued. When privatisation followed corporatisation, the private sector gained a secure foothold in what had previously been public sector roles and responsibilities.

Efficiency now trumped effectiveness, with the objective of minimising costs easily dominating service outcomes. Return on investment was now applied to infrastructure and only economic or financial returns were counted; social and environmental benefits were not factored in.

After the Covid 19 Pandemic (2020-2022) this approach and many others that developed after this privatisation shift, are being rethought. We are now looking to resilience rather than the minimum cost to one entity which externalises significant social and environmental costs. This is likely to require serious changes to our infrastructure decision-making processes and the need to ask a new set of fruitful questions, questions that lead to real improvement, not just change. So here, in preparation, I want to look back at the changes we have already experienced and the questions that inspired these changes 30 and more years ago.

How much does it cost?

Why, when it is so common in history for innovative ideas to be sparked by unexpected events and opportunities, has 'taking advantage of opportunities' developed such a negative connotation? For the story of asset management is very much the story of positive community benefit arising from taking advantage of opportunities.

The above statement by the Minister for Water is a case in point. After we had examined why it was that we did not have the information that the Minister would need to charge 'what it costs to supply water to irrigators,' principally lack of information on our capital holdings, we realised that this equally applied to all the services we provided; water and sewer provision as well as such research activities as investigation into rainfall in the arid north of the state.

So that afternoon I asked Alan Herath, our corporate policy branch manager whether he would like to know how much it was really costing South Australians to get their water and sewer services, not what we were charging them, but what it was really costing.

His eyes lit up and he said that he would very much like to know that. I wasn't really surprised; Alan was a very forward thinking engineer. After all, it was he who had decided that the department needed an economist and had appointed me to the position, the first EWS economist in the 110 years of its operations.

However, at this stage I started to have a twinge of doubt since I didn't know how such an inquiry by corporate planning might be interpreted by the other branches and divisions. Fifteen months in the job had given me enough insight to be aware of internal politics but not enough to be sure of working my way through them. So I tentatively suggested perhaps he might like to think about it overnight. He did, and the following morning was still of the same opinion.

So the game was afoot.

Or was it? I now had to figure out what our capital costs were. A little bit of exposure to the accounting system by this time had shown that our records were still hand written on file cards (this was 1984). Moreover, on these cards, an expenditure of \$500 in 1984 was considered to represent the same amount of acquisitions as it would have in 1964 or 1944, regardless of the changing dollar values. No distinction was made between capital acquisitions that replaced something that had worn out or failed, and those that expanded the stock. When an asset failed and was withdrawn from service, its value was not removed from these financial records.

This made the financial records extremely suspect and I was reluctant to use them, or even to approach the Finance Section for assistance, for I imagined that if I did I would be taken by the hand down into the basement and shown decades of dusty file cards with the instruction (along with a wry grin) to 'help myself'. Later, I realised that these records only covered what the department had spent out of its own funds, and did not include the very large Federal grants that were made in the early years or the, also large, developer-funded assets we acquired as our suburbs expanded in the later years. I needed to find another way.

What had I let myself in for? As an economist it was natural to start by thinking about the numbers, the financial data, and I did. But everything I thought of came up against the problems listed above. It wasn't until I had exhausted all possible financial data approaches and switched to focusing on what we were really talking about, namely the physical infrastructure, that I had a working alternative.

So one afternoon I sat down with our internal auditor and asked, "What different types of assets do we have?" In one session this brilliant fellow was able to sketch out on his whiteboard all the different classes of assets from pipes and sewers to treatment stations to pumps and dams, etc. What is more he also gave

me the name of the guy in charge of each who would know most about them. In only two cases was it necessary to be passed on to another person, so his knowledge was very good.

Data collection

Then I had to start my own data collection. Here my difficulty was the engineer's natural tendency to dive into detail. Economists, as everyone knows, are really happy with approximations and assumptions. Not so the engineers, for obvious and sound reasons.

So I did what Paul Van der Lee, my section leader, had done for me when I started working in the EWS. Knowing that I had spent the previous 15 years in academia where perfection rather than timeliness was of the essence, he would say to me "Penny, this is a half day exercise", or "Just one page will do, and I need it by Friday". I much appreciated that. So I applied it to this job. I would generally say something like "This is a half day exercise. If you think it will take more: stop. Call me."

In 1984 we had yet to experience the mass downsizing of the public service and the loss of experienced engineers in the public service that was to come about five years later. The senior engineers I spoke with had had many years' experience in the department and knew their assets very well indeed.

I talked at length with each of them and we looked at what assets they had, how old they were, when they might need to be renewed or repaired. We spoke of the history of the assets, the peak construction periods, the impact of WW2 and its limitations on materials and qualified personnel, and other changes experienced since then such as the increasing involvement of developers in the choice, design and construction of assets that were then handed over to the department to manage. Fortuitously, the department had just finished a commissioned engineering study of all its underground pipes and sewers, so a condition assessment of these assets was all to hand.

That meant that, in just three weeks, I was able to speak with each of the technical experts and get a very good idea of exactly what assets we had, what their condition was like, how long they typically lasted, and how old they were. So that was size, age, economic life and residual life accounted for.

(Incidentally, after I left the EWS for the Public Accounts Committee (PAC), a team of 7 engineers spent about 18 months to review the work I had done, in order to support the PAC study, and came up with the same figure for all the categories included, which pleased me. However, for their sake I am glad that they also found an entire asset category that the Internal Auditor and I had omitted. It was not large, but it was significant.)

Costing the portfolio

With a reasonable handle on the physical state of assets, quantity and quality, the next step was to calculate the replacement cost of the assets. Fortunately, the EWS had an Estimations Branch whose job it was to determine the approximate cost of any renewal or extension project that the department was engaged in. This is where I realised the second of my two key advantages in being an economist. The first, as noted, was

that, whereas engineers are trained to pay attention to the details; as an economist, I naturally looked at the big picture and was happy to work with assumptions and approximations. The second was that, not being an engineer, I was given greater leeway to ask the idiot question and I made full use of this.

My first idiot question: "How much does it cost to replace a kilometre of pipe?" The patient response: "What size pipe?" "I don't know, what sizes do you have?" He showed me a very long list of every size of pipe in the portfolio, along with the number of kilometres for each.

There were a handful with sizeable length and a much larger number with only a few kilometres each, so I said, "Let me have the cost for each of these separately, and then you can give me an average for the rest." "OK. In the city or in the country?" he asked.

Me: "Does it make a difference?"

"Sure it does, in the city we have to work around lots of traffic, dig up and replace sealed roads and work around an entire spaghetti of underground pipes and cables. The country is much easier, and we can often use the large earthmovers that we can't use in the city."

"I understand. So give me the costs separately for both city and country."

"Will do. Now," (and at this he had a wicked grin on his face) "through rock or through sand?"

If he hadn't grinned I would have been stumped, since I didn't know how I could tell which would apply. Instead I said "Do you generally know before you get there?"

He admitted they generally didn't.

"So what do you do?" He said, "We take an average". "Exactly! Then please take an average". We then dealt with sewers, pumps, dam renovations and treatment stations.

Those guys were so patient with me and I got excellent service from all the engineers that I dealt with. They were very bright, and I think they found dealing with an idiot like me a novelty. Certainly dealing with a female was a novelty. I was the only one in the entire department who was not a secretary, typist or tea lady.

The final reckoning

At the beginning of this exercise in April 1984, most assumed that the value of our assets was around \$800 million. No one knew, of course, because capital was not recorded, but this was the amount of debt that the Treasury had 'allocated' to us and on which we paid interest and so, on the basis that if we had \$800m of debt we must at least have \$800m of assets, that is what most assumed, if they thought about it at all, and generally they didn't.

Not until we started looking into it. Then some thought it could be a bit higher and estimated \$1 billion. Alan Herath, my boss, thought it could be as much as \$3 billion; the others laughed at this, but he was the closest.

The final figure, the replaceable value of our assets, was \$8 billion! Or ten times the figure that most had initially assumed. The written down value was roughly 2/3 of this, but the replaceable value, of course, was what was relevant for asset management.

How could it be so much more than our allocated debt figure? There were a number of reasons: one, the allocation was just that, an allocation, it bore no relevance to asset values; two, we had from time to time repaid some of the allocated debt, whenever Treasury had requested it; three, it was a historic figure and did not represent current values.

These things, however, were dwarfed into insignificance by the amount of our asset stock that the Treasury or the department had not funded and thus incurred debt for. A very large part of our asset stock, including the 359 kilometre Morgan-Whyalla overland pipeline constructed during the war years, was funded by a grant from the Commonwealth Government. The 1960s saw the second of the large overland pipelines constructed and, in addition, at this time, when new suburbs were being developed at a rapid rate, developers would construct the necessary roads, water and sewer networks and then pass them back to the government to be maintained in perpetuity. All of these 'gifted' assets were valued in our books at a nominal 'place-holding' one dollar!

Once we had reasonable current replacement capital estimates this was not the end. To answer our initial question, we still needed to calculate annual capital costs, which required determining the rate at which our assets were being consumed (either by wear and tear, or by obsolescence) and we needed to consider the opportunity cost of having so much money invested in these capital assets.

So that's what I did next, and that gave us the opportunity to move onto our second question.

We called our study *The True Cost study*. This was not taken kindly by the CFO who thought it reflected badly on him. This was not our intention; we simply needed a term to differentiate our figures from those in the financial records.

Chapter Two: What can we do now?

As we gathered the information and understanding to answer question 1, we found that we could do more, we could go beyond measuring what it cost today, we could look ahead to what it might cost to sustain our infrastructure and when, or to consider future renewal, asking:

Question 2: What is the likely cost, and timing, of renewing ageing water assets?

Life cycle modelling

Now that we had a handle on our total asset portfolio, its size, age distribution, and estimated economic lives, we realised that we could go further than simply determining how much it cost us now, we could look ahead.

The engineering study that the department had commissioned for its underground assets had concluded that there would be no major renewal needed for its underground assets for about 15 years. The True Cost modelling confirmed this and extended it to the above ground assets as well. But our modelling also enabled us to look beyond the 15 year mark and to determine that around this time, or the year 2,000, the amount of renewal falling due would start to increase and, once started, would continue to rise.

At this stage only the city's pipes and sewers had been replaced, and that was not because of age but because the city was increasing beyond the system's initial capacity. Just about all other assets were in their first 'asset life'. That meant that not only did we really not know how long they would last, but that over time a larger and larger proportion of the portfolio would be coming due for renewal.

The initial commissioned report, that had examined the underground assets, had given the department some comfort in knowing that they were fit for the next 15 years, and since this was a long time away, most extrapolated this to everything and for all time, certainly for their working lives. So I took to dramatically illustrating our results by sweeping my hand across the table saying, "There is no problem for the next 15 years", and then allowing my hand to drop precipitously off the edge!

Life cycle modelling had long been a technique for comparing proposed investment projects with different cost and benefit time frames. We would simply discount all the amounts back to the present and compare the net present values (NPV). It was a technique well known to the department, so to project likely renewal I took the life cycle framework, but instead of discounting back to the present to get a figure at one point of time, I focused on developing the most reliable distribution of future component renewal costs. Since we were not funding the future, merely trying to establish what it would be, no discounting was needed or applied.

The importance of asset age distributions

But of course, our assets were not new, so we could not assume, as we would if we were doing an NPV comparison, that all were at the beginning of their cycles. We needed to allow for where each system, and

component, was in its own life cycle. To do this we sought to establish when each pipeline, sewer, or above ground structure was established.

Fortunately, as we saw in Chapter 1, the engineers in charge had been with the department many years and were able to make reasonable judgements on these start dates. They also knew when major changes affected asset life profiles. For example, during the war years, most of the first class materials and workmen were taken up in the war effort and the assets constructed during those years were already showing signs of earlier renewal requirements than the pre-war assets.

And again, later when pipes and sewers for the new suburban developments began to be designed and constructed by developers, to be then handed back to the department for ongoing maintenance, it was discovered, not surprisingly, that these assets also had shorter time frames. So we segmented the asset distribution into pre-war; war-time, post war but before suburban development, and more recent years and then constructed model variations for each.

We modelled in five year segments. To pretend to be any more precise than this would have been ridiculous. Sometimes we could be quite accurate in knowing which five year bracket applied, sometimes we knew only within say ten or twenty years and would need to take an educated guess. The appropriate life cycle model was then applied to each five year age cohort within each asset class, allowing for the model variants.

The complete model, with all data, assumptions and details, along with discussion and recommendations, can be found in the *PAC Report on Water Asset Renewal* (available on the Talking Infrastructure website)

Modelling assumptions

A number of assumptions were made to support the modelling. We aimed at making as few controversial judgements as possible. So the first thing we did was to model everything in terms of current values. These we knew. Of course prices would be expected to change over the course of the projection but there was no way of knowing how. We certainly didn't want the logic of our model to be lost in a fruitless discussion of what future inflation was likely to be.

Next, we assumed that everything we had we would replace, and what's more we would replace it like for like. Now this was clearly not a good practice for actual renewal, but this default simplified the modelling, indeed, made it possible.

We also assumed the same maintenance and renewal practices that we were currently using. Moreover we would not assume that some miracle would occur with technology that would solve our future renewal problems or that prices would marvellously change in our favour. We kept those factors constant.

In other words, we didn't want to assume away the future problems we were likely to face.

One other thing we did, which was exceedingly important, was that whenever there was any doubt about a future cost, we would take the lowest figure. This we stated upfront. We knew that the projections would be scary enough, even when understated, and we didn't want the results to be dismissed as overstatement.

The 'abatement factor'

This is not to say that there was not considerable dispute along the way before we settled on these assumptions.

One of the arguments favoured by a section of the engineers was the 'abatement factor'. They argued, reasonably, that it was quite likely that over the next 15 years and more there would be technological improvements and there would be price changes. Moreover, these could reduce the future price by as much as 20% said some, others argued as much as 50%.

My response was, "While we are guessing, what about 100%?"

That, however, was considered truly absurd.

The important point was that if we were to write down the size of our future renewal problem by assuming lots of technological change applying to renewal would take place anyway, why would we bother to undertake the technical research to make it happen? Moreover, as we looked around at that stage, most technology seemed to be applied to new assets, rather than replacement.

Fortunately, the renewal problem was not written away on paper, and new and exciting techniques of renewal were developed as the extent of future demand became clearer.

The point of future renewal projections is not to be accurate predictors but to provide useful guidance so that decision-makers can take action to change the default future. If the renewal projections were to 'come true', then clearly they would have failed to do their job!

Asset consumption

The most difficult parts of the model to estimate were the rate of asset consumption and the opportunity cost. The reason these were difficult is that they ran afoul of current financial practice.

Infrastructure assets at that stage did not feature in the financial accounts and were not depreciated. Nevertheless, they still wore out or became obsolete and we needed to account for this when we calculated what it cost to supply water and sewer services to South Australians. It was, of course, equally critical in determining future costs.

At the time, asset consumption was represented by a sinking fund. However, the sinking fund was calculated in historic cost terms, and when we looked at the amounts that were being set aside (generally as a gentlemen's agreement between the Finance Section of the EWS and the Treasury) the figure would

only be appropriate if all of our assets lasted more than 350 years! Our own modelling figures were based on the engineer's expected life figures, and on replacement costs.

Opportunity costs

Opportunity costs were even more difficult, principally because, if you weren't an economist, you probably didn't know what they were. These are the costs that we were incurring for South Australia by investing in large scale water infrastructure rather than investing in whatever the next best opportunity would have been.

Now we didn't know this figure, but we did know that it wasn't zero. For the EWS, the figure that came closest to this (although not really very close) was the interest amount that Treasury charged on their allocation of debt to us. This was loosely informed by the interest rates that the Treasury was using in its cost-benefit analyses for new projects. This was also a matter for dispute with the engineers.

In the first few weeks with the Department I had attended an Engineering Society meeting that was being addressed by a former Economics Lecturer of mine, who had subsequently become Minister for Education and in whose electoral campaign I had participated. At this meeting he argued that the discount factor (i.e. the interest rate that the Treasury was using) was too high and it should be down around 2%. My engineering colleagues loved it and agreed.

At the time I thought this was wrong and preferred the Treasury's higher figure, but now I am inclined to believe he might have had right on his side. I am still not entirely convinced because the lower the interest rate, the more infrastructure projects are likely to be accepted and investment could be overdone, if this were the only, or key, deciding factor. Later we will argue it should not be the only factor, but that is for a later volume in this series.

The size of the asset portfolio

As we calculated the size of the asset portfolio, the engineers got excited by it. A sort of shadow, unstated, but well-known competition was taking place and I was always being bailed up as I waited for the lift, or ate in the cafeteria, to know what the 'latest figure' was, and the CEO and deputy CEO were not immune from the fun of seeing the figure rise. The larger the amount, the happier they were. It reflected well on their importance to the organisation.

The same, however, was not true of Accounting and Finance. Their situation, of course, was entirely different. The larger the replacement value, the more difficult their future financial problems would be. It also became harder, even impossible, to reconcile our figures with those in the financial records.

Finance sought to defend what they had been doing rather than recognising that we now had a chance to fill in some of the gaps in our knowledge. Moreover, the 'true cost' study made it clear that a lot of what we had been taking for granted as 'costs' were, in fact, merely a cosy and long-standing gentleman's

agreement between our Finance people and those in the State Treasury, so it was to be expected that in presenting the results of our work to the executive committee we would get a lot of opposition from Finance.

Presentation to the executive committee

When it eventually came time to present the new True Cost approach to the executive, I ran a rehearsal with my corporate planning colleagues. Every few minutes they would stop me and say, "But if you say that, then the CFO will...." I realised that I could be walking into a mine field.

However, I took notice of everything that they said and, on the day, I anticipated the CFO's reaction by saying, whenever I came to one of the points that I had been warned about, "Well, of course, a possible reaction might be... but clearly this can be addressed by" Or, "Some might say ... but we can readily recognise that this cannot be the case because...." Or something similar.

My colleagues had done a wonderful job in identifying all of the CFO's objections, and he was getting more and more frustrated as I moved through the presentation until at last he couldn't take it anymore and burst out, "But if we do what you suggest, we will become more efficient and have to sack people." I meekly confessed that I had not foreseen this outcome! But by this time there were grins all around the room and I knew we had won.

(Incidentally, a few years later, the CFO made a presentation to the Engineering Society claiming that he had been responsible for the entire approach, and was then rather sheepishly embarrassed when he realised I was in the audience. But I didn't mind. If he could boast about it, at least he would take it on board.)

We are not alone

After the results of our modelling had been accepted by the Executive, showing we had a period of grace of about 15 years before our renewal requirements would start to rise, I suggested to the CFO that we could use that time to plan our renewal funding strategy.

He told me he had his own strategy: "When we need extra funding I simply ring the Treasury and say 'Fred, we need another \$50 million', and Fred says, 'OK, You've got it'."

I was astonished and said that it was likely there would come a time when no matter how much Treasury was on side, Fred would be financially unable to say 'You've got it', but the CFO just shook his head at my woeful ignorance. This confirmed my understanding not only of the gentlemen's agreement but also how much it was leaving the department, and indeed the State, unprepared for future change.

It led directly to my next questions. We would obviously not be the only department experiencing ageing infrastructure, so what demands, and when, would other departments also be putting on Fred's largesse?

Question 3 thus became 'What is the future cost and timing of all of the State's infrastructure?' with a natural follow on as Question 4: 'What can be done to manage this cost?'

I started to do a few 'back of the envelope' calculations based on conversation with engineers from other departments when, unexpectedly, an opportunity arose that I would have been mad not to take, although at the time, I did my best to avoid it! But we will continue this in Chapter 4. Let us look now at the reactions to the True Cost Study within the department and within the water industry.

Chapter Three: Reactions

The right time and place

Had I tried to do this exercise anywhere else than with the EWS, I am now convinced it would not have seen the light of day. I would have been blocked by those who foresaw their current situation changing, and changing in ways they could not control.

Chief amongst these was Finance, as was later to be confirmed by the reactions of the State Treasury. There really was nothing in this exercise for Finance. They were comfortable with the way things were, they knew what they were doing, and they had 'the power of the purse'. What I was proposing was going to shake things up.

Finance has a short term focus, mostly concerned with this budget year and next year's budget bid. Fortunately, in the EWS, engineers were dominant and they were able to take a longer term view. They were excited to realise that their asset portfolio was so big, and thus important! So, regardless of personalities, it was natural that I would get more support from engineering than from finance. But, of course, there was more involved. There always is.

Small things can have large consequences

I am English and the English are particular about their tea. I did not care for the brew that was served from the large urns in the basement café, so although his Secretary had declared that the tearoom on our executive floor was for the sole use of the CEO and his guests, early in my time with the EWS, I decided to disregard this and make myself a cup of tea with fresh hot water.

As I was doing so, the CEO himself arrived and so, caught, what could I do but smile brightly and say, "Would you like a coffee?" I made him a coffee and was about to take my tea back to my room when he said, "No, come and talk to me". He was curious to know what economists did, and what they could contribute to his department and so, in those first few weeks I often had morning tea with the CEO.

I guess these conversations might have given him the impression I knew something about politics, although I hardly did, for one morning he interrupted one of our corporate planning meetings with "Good morning, Penny and Gentlemen, and it's you I want." Naturally my mind immediately leapt to what transgressions I might have committed. Fortunately, he just wanted help.

The irrigators had not taken kindly to the latest price rise and they had come, en masse, with their equipment, blocking exits from Parliament House, and demanding to speak to the Minister, who wasn't at all keen to speak with them.

When the CEO told me what was up, I said, in exasperation, “My goodness, water is really a small part of their budget when compared to electricity and the electricity price goes up every year and much more than water, yet I don’t see them complaining about that!”

“Is that true?”

“Yes, sure, look at this,” and I was able to show him the spreadsheet that I was working on showing the proportion of different expenses within the typical irrigator’s budget. He was delighted, promptly got through to the Minister who, now armed with a few facts, came out and addressed the motley assemblage.

Later the CEO made me his executive officer and, although I chafed at what I initially considered a menial chore, it not only gave me the opportunity to observe a master strategist up close but it also enabled me to develop good relations with all the public service heads. This little thing turned out to be quite useful when I needed to get them onside with the work I was later to do with the Public Accounts Committee.

Take every opportunity you can - you never know when it will make a difference

A few weeks into my term with the EWS, my colleague, Rex, was meant to attend a meeting on the Water Resources floor but had an urgent job on, would I like to go instead? It was about measuring the level of salinity in the River Murray of which I knew little, but I was happy to go.

When I got there, a consultant was reporting on his study of the costs of salinity along the River Murray. The guy had measured salinity at its lowest and highest points and then had simply drawn a straight line between them, thus assuming that the costs of increasing salinity were linear.

Without thinking much about it, I asked him for the white board marker. Surprised, he gave it to me and I drew another line on the board, one that inclined very slowly at the beginning and then started to increase until it met the highest point. I pointed out that salinity costs do not rise immediately because the river is able to cope with a certain amount of salinity so drawing the curve the way he had would overstate salinity costs all along the river and, importantly, it would also miss identifying the point at which costs started to rise rapidly, even exponentially.

The consultant was furious. And fair enough. It had not been my intention to upstage him but I had just left the University where, for the past ten years, I had been running economics tutorials in small rooms with a whiteboard just like this and habit simply took over.

I would have immediately apologised and explained, but he gave me no chance, rounding on me and demanding belligerently to know how long I had been in the EWS. “Just a few weeks,” I answered, “Then what do you know about water?” I admitted, “Not much, but this really isn’t a water problem, is it? It is a logic problem.”

This sent him completely up the wall and he started to verbally abuse me. Fortunately, a glance at my watch reminded me that the branch was going out to lunch with the CEO, so I stood up, smiled at everyone

and said, "I'm sorry to leave you but I have a luncheon engagement with the Chief". (I omitted to say that the whole branch was going.)

This exchange absolutely enchanted the engineers in the water resources division! Because he was a friend of the CEO, this consultant won many commissions and would lord it over the departmental engineers who felt they had little option but to put up with it.

When the word got around, I was quickly and warmly welcomed by all the engineers on the water resources floor. They would tell me the issues they were working on, and we would try to find solutions. I enjoyed their issues more than those in corporate planning, so would spend a lot of time on that floor, and irrigation and salinity issues then became what I was known for.

One thing led to another - as it always does

About a month later, I was asked to contribute a chapter in a report seeking financial support from the Commonwealth Government for correcting river salinity along the River Murray. South Australia was at the tail end of the river and so was most affected.

The other chapters were to be written by engineers, and I didn't want a report so important to the State to look as if it were a patched up job, which it would if I wrote using economic terminology. So to ensure that my language matched theirs, I talked to each of the intending authors, whom by now I knew, about what I wanted to say. I noted what terms they used in response and used those terms in my chapter. This gained me the reputation of being 'the only economist who can write so that engineers can understand'!

Australian states are quite competitive. To get New South Wales, Victoria and South Australia to co-operate with each other on the salinity issue, required a carrot. This would be greater funding support from the Commonwealth.

If each of the states were to contribute 1/8 and the Commonwealth could be induced to pick up the remaining 5/8, they were prepared to work together. But what would convince the Commonwealth to be so generous?

I argued that it had a 'historic moral responsibility' (a term I invented). The salinity problem arose because of irrigation along the river, and this had been the result of the Commonwealth establishing returned soldiers on the land. A worthy objective. But we argued that the Commonwealth had benefitted, and it was now time for them to pay the costs.

These were all small things, but they gave me a lot of support with my engineering colleagues. This did not stop them arguing with me or critically assessing what we were later to do, but they were generally on-side and their criticisms were constructive.

With their help and support from the Chief, I was able to achieve a lot. Particularly since it was not my aim to take the credit. I just wanted to see the job through to a successful conclusion. In fact, at one stage I had happily told my boss that I could get anybody to do anything, I just had to let them take the credit for it.

Alan replied softly that that might be so, but why would anyone fund corporate planning if everything was seen to be being achieved elsewhere? A good point!

I realised that my task-oriented focus was not strictly strategic and that was a valuable lesson, albeit one that I had to re-learn a number of times.

Things did not start so positively with the CFO - the water price

I had an early black mark from the Chief Financial Officer. On my third day in the department, conversation had turned to the water price that was about to be announced. The CFO held that there would be no increase this year. My role at that stage was clearly simply to observe and, had I done so, things would have been fine.

However, I thought this result unlikely, and explained why: an election had recently been held and the incoming administration had campaigned on a promise not to raise any *new* rates or charges. So, as governments always want more money, it stood to reason that if new rates were out, they would need to increase the rates they already had.

Moreover, since there had been no rise in the water rate in the lead up to the election, I figured that it would be raised this year. The CFO was rather miffed that a newcomer should challenge his opinion and demanded brusquely, "OK, then what will it be?"

Put on the spot, I suggested 5% and that is what it turned out to be. Pure chance, of course. But from that moment on, the CFO and I were on a collision course.

From bad to worse - the castor story

When, about a month or so later, a castor came off my office chair, I said, as I surveyed the damage, "I had better get this to the repair shop to get it fixed."

At this, the others yelled, "No! Don't do that! It will be cheaper just to get a new one."

I laughed. But they were deadly serious. More than that, they were right! The Repair Shop had adopted the fashionable new policy of 'charging out', meaning they were able to charge other branches for the in-house work that they did. This might have worked fine, had they had any competition, but they didn't. They could charge anything they liked.

Moreover, they had simplified their accounting by simply allocating all their monthly costs (including all their idle time which was increasing by the month) over any jobs they had on hand. As their charges rose, jobs stopped coming in, causing the next round of price rises.

This had now reached the stage where to have a castor re-attached would genuinely cost more than the chair itself. Yet no one had done anything about it!

Even worse, the chief accountant was so proud of his financial policy that he and the CFO were planning to run an international conference to show off to the national and international water authorities. I explained what was wrong with this approach to my branch head and wrote two papers, one in the vernacular so that everyone could see how damaging it was, and one, in more measured academic terms. The conference was cancelled so at least we did not look like an international laughing stock, but it did not win me any favours with the chief accountant or the CFO.

Changing the policy, however, was more difficult as Accounting stuck their heels in and had the Minister sign an instruction demanding that all jobs be sent to the Repair Shop. With the growing dominance of the 'free market competition' model across the country, this could be considered the public sector dipping their toe in the water, trying to become 'more efficient, more competitive, more market oriented', yet still wanting, and indeed having, to operate within a public sector framework.

There is no doubt I could have been more diplomatic, but I doubt the results would have been different, for 'charging out' was to become the flavour for many other departments. I spent many years when I became an infrastructure advisor, either correcting the damage done or warning policy makers off.

The value of opposition

With hindsight, the CFO's opposition was extremely valuable. It stopped me getting sloppy. I had to be forever on my toes, anticipating him wherever I could, and dealing with him when I couldn't.

He had a clever way of blocking me without seeming to be in opposition. He would challenge me on every point I made, but if I was able to overcome that, he would then proclaim that what I was doing was very important and that I should extend my inquiries to cover a wider field. By increasing the scope, his intention was to slow me down. It was very effective.

Now, he always sat opposite me at the meeting table, but one day I deliberately chose to walk around the table and sit next to him. He looked startled and, curiously, for that entire meeting he did not challenge a word I said. I had read that this would be the case, but I didn't believe it until I tried it out for myself.

This was, of course, not the solution to all problems, but learning to deal with negative reactions was to prove very useful wherever I went.

The reaction of other water authorities

After I had presented the True Cost study to the Executive Committee, the CEO said, with a happy smile on his face: "That was great, now I want you to find out what everyone else is doing!" Still flying from a successful presentation, I cheekily replied "Do you mean get on the phone and find out, or get on a plane and find out?" He then said what he was to repeat a number of times while I was in the department: "Penny, you must do what you think fit." So I got on a plane.

I visited every mainland water authority except Darwin, and everywhere the story was the same. “When do you say major renewal will start to ramp up? No problems! I will be retired by then!” For managers of very long living assets, they took a very short run view, mainly concerned with maintenance and renewing what they already knew to be substandard.

No one was looking out beyond five years and trying to anticipate where problems might arise. They did not have estimates of economic life, and the standard method for determining the time to intervene was the ‘bathtub curve’ methodology familiar to all engineers, and still in practice in many places today. Namely, after a pre-determined number of breaks, the pipe or sewer would be replaced. There was no cost analysis. Because of this, all water authorities kept statistics on the number of breaks per kilometre.

In Sydney I was being given a polite hearing, but more in tolerance than genuine interest, until I told them what our current break rate was. It was the same as theirs, to the decimal point! Now this was pure coincidence and nothing on which to base a decision, for the geography was entirely different.

Sydney had a very difficult terrain to traverse, up and down hills, whereas in Adelaide the land was very flat. The current average number of breaks should have been irrelevant. Nevertheless, the fact that our break rate was identical to theirs changed the entire conversation. The same CEO who had previously declared that he would be retired before problems arose was now intensely interested. Sydney Water then became quite pro-active.

In fact, as word of what we were doing spread in the water industry, there was a great deal of interest by all water authorities across the country and they were the first industry to develop asset management skills. This then spread to their contacts in water authorities overseas.

Chapter Four: My Story - Moving On

Public service advice

When I started in the public service, I had been given a piece of advice which I thought, and still think, is sound. I was advised to spend about 2 to 2.5 years in three different agencies, and then decide whether I wanted to remain in the public service or move on. This 2 to 2.5 year period was considered the optimal time for me to give what I could give and to learn what I needed to learn.

But good advice or not, I was really enjoying my work with the EWS and did not want to leave, so when the two year mark arrived I compromised and applied for a one year secondment to the Public Accounts Committee. When the interview was due, however, and after I had deferred it for as long as possible, I wanted to change my mind.

Now this may sound sexist, and it is, but at that time, and maybe still today, if you were male you could simply say you had changed your mind and it would be accepted, but if you were female, the more likely response would be 'She simply doesn't know her mind' and it would have been a mark against me. Still, I reasoned, how hard can it be to simply fail an interview, and that's what I decided to do. On the day of the interview I dressed down. Flat shoes. No makeup.

How not to fail an interview

That interview would have to be the weirdest I have ever taken. The interview panel comprised the Chairman of the Public Accounts Committee and one of his Committee members, the Committee Secretary, the Speaker of the House and his clerk. The Speaker of the House introduced everyone to me and then picked up a newspaper and disappeared behind it for the rest of the hour and was seen and heard no more.

I was polite and answered questions as intelligently as I could, until the committee member asked me how much work I did on programmed performance budgeting (PPB). Quite frankly, I did nothing and said so. The fellow coloured up immediately and it was clear that he had had a hand in getting the program adopted. "Do you mean to say that the EWS is not taking PPB seriously?" he demanded.

I told him that there were two answers to his question. I then spoke of the assiduous work carried out by my colleagues in this area (quite frankly, a bit of an exaggeration) and, when he was breathing normally again, I reminded him that I had said there were two answers.

By this time he was interested to know what the second answer was so I told him. "You realise, I suppose, that PPB cannot do what it is claimed to be able to do?" And he was off again! It was mean of me, but I told him of the problems that had been experienced interstate wherever it had been applied, and why we lacked both the data and the motivations for it to work.

That rather set the tone for the interview after that and now instead of polite questions, I was being challenged. Good. Things were going as intended.

The Chairman asked me the difference between efficiency and effectiveness and whether the PAC was effective. I said, with a smile, if he would tell me his criteria for effectiveness I would be able to answer his question. I had taken a punt that he wouldn't have had any criteria and he hadn't.

By this time he knew I was playing with him and I thought that should have been sufficient to scratch my name off the list. But my answer seemed to pique his interest. "Tell me," he said, "what do you think we should be doing?"

And that was when the wheels came off my plan to get rejected

I told him that there were two important problems that some parliamentary body should be looking at, and if it was not them, I didn't know who it could be. Now they were all interested.

I told him that through our Treasury, the South Australian Government Financing Authority had been very successful at acquiring funds (at a time of restriction through the Commonwealth Government's Global Loan Limits) because they were offering attractively high rates. However, this put the onus on them to now find borrowers who would pay them even higher rates, and that had put us into a high risk zone.

The other issue was that of our ageing infrastructure and our unpreparedness for future renewal. I told them that, as the Public Accounts Committee, it was their responsibility to be aware of these consequences of government spending but they had absolutely no idea of how much they would be up for, nor when such infrastructure renewal spending would fall due; no-one did.

The Committee chose to explore the debt issue for the remainder of the session and we didn't come back to the renewal issue again. Even so, I had the distinct impression that I had failed at the simple act of failing an interview and this was confirmed when, the following morning, my boss was informed that I had been chosen. There was just one last opportunity to get myself out from under as they wanted to have a longer conversation with me that morning in the House.

At this meeting I told them that I knew absolutely nothing about politics and would not even recognise the eminent members that I passed in the House. Talk about digging a deeper hole!

Too late, I realised that ignorance is a good substitute for impartiality in a bipartisan committee researcher.

My research had shown me that the PAC's practice before me was to do small investigations that I referred to as 'pinging' exercises, such as identifying and penalising low level officers for the misuse of government cars. This was of no interest to me.

I told them that I would not investigate my department, the EWS. Fair enough, they said. Moreover I will not investigate the Agriculture Department. This puzzled them. Why not? I explained that I had, over the past 18 months, built a good rapport within this department, rapport that was very useful for the

government work that I was doing in irrigation pricing and water transfers and that I did not want to ruin it for the sake of a one-year secondment. OK, they said.

Damn! What could I do now?

An opportunity too good to refuse

Then a very interesting change took place. I realised that they did not have any of the traditional pinging exercises in mind for me, but that I was in fact being offered a chance to take the infrastructure renewal work that I had done for the EWS and to expand this to cover all the major infrastructure holdings in the State.

“Can you do this in one year?” they asked.

I thought this highly unlikely but what I actually said was “I will give it a go.” It ended up taking just over two and a quarter years.

Any academic researcher will appreciate the enormous opportunity that this presented, to do a research project of my own choosing, to be paid very well for doing it, and to be supported by the Committee’s Royal Commission powers that would ensure I could get all the information I wanted. I stopped trying to get myself out from under and said “Yes!”

There was an additional benefit that I did not recognise at the time, and that was the ability to get the results of the work out into the wider world with the credibility that comes from parliamentary reports.

Why had the Committee decided to depart from tradition and do a research project? Well, of course, they were intrigued and the idea of doing something more significant than their usual exercises was attractive.

It also happened that the Committee was headed up not only by a very intelligent Chairman but also an extremely capable Secretary and I suspect that the Secretary, with whom I had spoken before applying for the position, had had a word with the committee to get them onside with the idea of doing a research project.

Then there was the timing. A new election was due within about six months and the government members (who were the majority on the committee) did not want any government failings to be brought up in the media in the lead up to the election. The fact that I would be unable to produce anything before the election was thus in my favour.

Had I been more successful at failing interviews, I would have missed out on the opportunity to take the ‘back-of-the envelope’ calculations I had been working at and to develop the information base that was needed if the Parliament and Government were to take future renewal seriously.

As a side issue, I later learnt that, after the interview, the Speaker of the House came out from behind his newspaper and said, “We’ll have her! If she is asked to stick the knife in, she will only ask ‘how far?’” I think

he was referring to my exchange with the committee member over PPB. I like to think that the Chairman had a different reason for choosing me; he liked to provoke me into argument which we enjoyed and later he offered me the position of his Chief of Staff when he was made Minister for Energy, so perhaps he had.

I would like to acknowledge Kerry McGovern, Gregory Punshon, Bob Ritchie and Ruth Wallsgrove for their improvements to Part One

