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Socially Responsible Infrastructure

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Lead by example for socially responsible infrastructure pp.151-152

The title of this issue was inspired by the Society for Socially Responsible Engineering, which flourished in the 1980s. I cannot think of a more significant topic for all Asset Managers for this 200th SAM report.

Philip Thornton, a mechanical engineer, expresses the aim of the Society beautifully when he says

"It is hard to imagine greater folly in a democracy than to subscribe to the belief of keeping quiet by minding one's own business."

20 years later, have we become even more quiescent?

In this world of spin and disillusionment; are we not now, more than ever, in need of *informed* debate on infrastructure issues?. If politicians and the media won't do it: then who? If those who *know* say nothing, and only those who *don't know* speak out what chance is there?

But let us not rest all the responsibility on the shoulders of the engineer! This is not only '*not fair*'; it is also '*not productive*'. All of us who are involved in advising or deciding on assets must be, in Philip Thornton's words, prepared to

"carry out the investigations, consider the facts and express an opinion".

If not us, then who?

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SOCIAL RESPONSIBILITY—THE CHALLENGE!

Key Ideas

Society for Social Responsibility in Engineering flourished in the 1980s

Role: to inform the public

Spurred by the misrepresentation of proponents of the Franklin below Gordon River DAM

They asked: What is ethical?

Conceptual forerunner of ACORN Inc.

Today:

- **Need more than engineers**
- **Not 'telling' but 'listening' too—ie dialogue**
- **Asset managers need to know more about the real needs for service**

The Society for Social Responsibility in Engineering (Aust) formed at the beginning of 1983 partly to counter the "misinformation" being circulated by vested interests supporting the Franklin River Dam proposal in Tasmania. Many people in the engineering and related fields realised the need to critically assess projects like the Dam proposal on technical, economic, environmental and sociological grounds. Independently, Engineers for Social Responsibility was established in New Zealand.

The Society set up a "Skills Bank" to initiate research projects, to inform the public and government bodies, and to assist environmental, residential and trade union groups to assess the impact of projects on people and the environment. The skills bank was aimed at pooling the skills and practical experience of people, from their specific technical fields. It was also aimed a t providing the opportunity for people interested to participate.

Dr Bruce Davis of the University of Tasmania said at the time "Through development controls in urban and regional planning, the siting of major public works and the imposition of environmental safeguards in natural resources utilisation, engineers are cast in crucial roles to determine what is saved and what is destroyed of our built, cultural and natural environment. It is easy to shrug off responsibility for such decisions, claiming that technical considerations are of primary importance, or that professional engineers are mere employees of public and private institutions, where managers and politicians really determine policy. To adopt such perspectives would be to deny the undoubted influence that well-educated and articulate engineers can play in key decision making, or to shirk inescapable social and ethical considerations."

In this way, the SSRE was a conceptual forerunner of ACORN Inc.

Today, some 20+ years on, we need to recognise

- The importance of engineers *and other asset professionals*
- That it is no longer an issue of 'telling' others; but rather *engaging in dialogue with them*
- That as asset professionals we must make the effort to understand more – not only about the assets we manage, but also *about the world in which they will be utilised, and the people that they will serve.*

We must all take responsibility for socially responsible infrastructure outcomes – decision makers, opinion formers, and community – but *especially asset professionals.*

The Header and Footer Quotes throughout this issue are from
Engineering - Can it be Socially Responsible? (1984)
Technology and Social Responsibility (1986)
What Technologies are Appropriate (1989)
All published by the Society for Socially Responsible Engineering

My thanks to Ken Doust, NSW RailCorps, ACORN Inc member and founding member of the SSRE. who drew this to my attention.

To Achieve Socially Responsible Infrastructure — FOCUS ON OUTCOMES

Key Ideas

Input measures are meaningless

Performance 'targets' questionable

Outcome measures are hard but relevant

3 Suggested Outcome Measures for Local Government

Performance Indicators

In the past, like others before and since, I have cobbled together KPIs that make use of existing data or easily accessible measures. In my defence they were presented with caveats, warnings, and cautions on the way they were to be interpreted – all of which were, however, never really understood and certainly promptly forgotten. So there they stood in all their naked glory – ***and they were rubbish!***

Why rubbish? Consider the following that many would consider a perfectly reasonable KPI - **$ maintenance per physical unit of asset** (eg maintenance per kilometre of pipe). Now ask yourself:

Does my performance improve

When the measure goes up? (e.g. more maintenance dollars per unit asset) - does this represent 'improved reliability' (good) or 'wasted resources?' (bad)

Or when the measure goes down? (less maintenance dollars per unit asset) - does this represent 'greater efficiency' (good) or 'cutting corners' (bad)

If you can't tell, how do you use the data as a KPI? (In fact, why bother to collect it at all?)

Input ratios such as 'maintenance per unit asset'; 'debt per household'; 'capital per ratepayer' debt: income ratios, etc. are all meaningless in the absence of skilled interpretation.

Now consider the following: What do you desire in a car?

Fuel efficiency?
Safety?
Speed?
Looks good?
Comfortable?

Outcome measures. If you got more fuel efficiency would that be good? Of course! More safety? Yes. More Speed? Yes. In fact, yes to every one. Because these are not input measures—they are OUTCOME measures. They are measures of things **we want for their own sake.** (Who wants 'capital per ratepayer' for its own sake?)

"There is no penalty for expressing strong views on controversial issues, provided that it is done in a well informed, intelligent and reasonable manner and the views of others are respected. " Philip Thornton

To Achieve Socially Responsible Infrastructure — FOCUS ON OUTCOMES (cont.)

Asset management has few real OUTCOME measures and many, many input measures.

(If the general layperson does not have a clue what you are talking about, then you have an input measure!)

Performance Targets

I realise that I am probably stepping on a number of toes here but think about it! —targets tell us in which direction we should be moving. If it were obvious that 'more' of something was good, targets would be unnecessary.

Trouble is, most of the 'targets' themselves do not make intuitive sense! In the table excerpt below (NSW Local Government Infrastructure Study: 2006, *Are Councils Sustainable?*, p 283-4)there are a number of measures and their targets. WHY these targets? What is so desirable about having net debt equal to total revenue? (And for everyone? In every situation? - In the days of 18.5% interest rates, such a policy may well have sent an organisation to the bankruptcy courts!)

Trouble is we get so carried away with ourselves chasing after these illusive (and meaningless) targets that we lose sight of why we are in the game in the first place—to get OUTCOMES!

I would like to propose that we move away from myriads of input measures and focus on just a handful of OUTCOME measures. I suggest the following would be a good start:

Outcome Measures

1. Long term financial sustainability for the organisation, ie—for councils—**NPV of future receipts to be equal to, or greater than, NPV of future expenditures over a 10 year period**) (Water organisations may wish to take a longer period.)

2. Effectiveness — Services provided are those decided on by an informed community.

3. Fairness— In deciding communities consider who will be advantaged and who will be disadvantaged and take steps to mitigate the worst impacts even at the expense of some loss of benefits.

OK, so <u>demonstrating that these outcomes have been achieved</u> will take some effort—

Isn't it better to do something challenging, where even partial achievement brings benefits—rather than something relatively easy which brings none!

Financial KPIs	*Average Council Actual*	*Proposed Council Target*	*Proposed Upper Limit*	*Proposed Lower Limit*
Net debt as % of total revenue	*10.5%*	*100%*	*150%*	*50%*
Net financial liabilities as % of total capital employed	*2.2%*	*10%*	*15%*	*5%*
Net interest expense as % of total revenue	*0.6%*	*15%*	*20%*	*7%*
Net borrowings as % of capital expenditure on new or enhanced assets	*1.3%*	*50%*	*60%*	*30%*
Annuals renewal deficiency as % of renewal capital expenditure	*40.2%*	*0%*	*10%*	*- 10%*
Infrastructure backlog ($M) as % of total infrastructure assets (est. at fair value)	*8.1%*	*0*	*1%*	*-1%*

"Most of the many hidden costs of the chemical age are borne by society as whole, because industry follows its traditional path of privatising its 'gains' and socialising its 'losses'." Dr Kate Short

"If you believe it needs doing, do it! If you believe it needs saying, say it! "
Bruce Sinclair

To Achieve Socially Responsible Infrastructure— WORK WITH ECONOMISTS!

Key Ideas

Economists have shaped our current infrastructure and management style

Economic incentives can be used to improve social outcomes

Four examples given:

1. **Carbon credits**
2. **California low emissions policy**
3. **Using the tax system**
4. **Smaller packages for contracts**

It is Economists who have decided the shape of our infrastructure today and the way our infrastructure is now managed.

Corporatisation, commercialisation, out-sourcing, contracting out – these are all policies that have been determined in the main by economists, with a focus, naturally, on economic efficiency.

If we now believe that in gaining economic efficiencies we may have lost some desirable social outcomes, then it is again to the Economists that we must look. Our world today is dominated by market trading – so let us make it work for us, rather than against us. It won't be easy because in the market what one person gains, another loses. And the losers will fight to retain what they have (largely irrespective of the community benefits of alternatives.)

But, in the words of Bruce Sinclair, quoted above, "If you believe it needs doing, do it! If you believe it needs saying, say it! "

> We don't have to tell people to breathe! They will do it anyway. And we don't have to provide incentives to industry to make a profit. That is just as instinctive. So let us use economic incentives to gain desirable social ends, whilst retaining the market benefits of economic efficiency.

Example 1: Carbon Trading Credits can provide the incentive for more efficient energy production

Last month, South Australia, New South Wales and Victoria put forward a blueprint for a carbon-trading scheme that would push the electricity industry into cutting pollution levels. The idea would be that companies would be allocated carbon 'credits' and those who were able to reduce their pollution levels below their credit allowance could on sell them to others who could not. Similar schemes are already active in Europe and some parts of America.

Clearly such a scheme would best be applied nationally but was rejected by the Federal Government as being bad for the resources industry and bad for jobs. It has also been stated that without 'proven technologies' the economics of energy production would be adversely affected. (The 'Catch 22' situation here is that without a potential market these technologies are unlikely ever to be 'proven')

Sadly, in the face of such ready federal rejection, little more has been heard about this scheme. Why are we so easily browbeaten into submission?

"An important question we should ask as engineers is 'who is responsible for social responsibility in the energy industry'?" Lloyd Harrington

To Achieve Socially Responsible Infrastructure— WORK WITH ECONOMISTS! (cont.)

If such a positive environmental step cannot be considered *in the midst of a resources boom* when can it ? Where is the debate?

Energy consultant, Dr Hugh Saddler, says "We need to change the ways we use energy and the sources of energy towards lower emission energy sources and that's not going to happen in a market economy unless you give all the economic agents a price signal, and a trading scheme is the first step towards giving just that price signal". After all, isn't that why we moved to a market regime in the first place?

Example 2: California Leads

Perhaps we can take heart from the example of California, a long time leader in energy efficiencies in the USA. California's mandated energy-efficiency standards over the last 30+ years are said to have reduced electricity consumption by the equivalent of the output of more than 20 average power plants. This is the stick. But California has also used the carrot, by decoupling utilities' sales and their profits and allowing rate increases for utilities that help customers cut energy use. The logic was that for every dollar the consumer did not spend on energy, the utility would get real income – say 15 cents, which would exceed the profit the utility could have made on that dollar. For consumers, efficiency savings more than offset the rate increases. In most places, utilities are rewarded for selling more electricity. California rewards utilities for selling less.

Now they have gone further. California is now requiring all electricity sold into its market to meet new levels of air quality and greenhouse gas emissions. "The State's aim is to reduce emissions of climate-changing gases produced by burning coal, oil an gas. Other states, particularly New York, are moving in the same directions, but no state is moving as aggressively on as many fronts." (New York Times, Sep 15, 2006). "When you have 38 million customers you don't have access to, you rethink". California is taking a gamble that they will be successful and a demonstration model to the rest of the world.

They, too, are facing opposition from a Federal Government not inclined to limit the profit taking of the resources industry. But they are doing it anyway!

Example 3: Using the Tax System as an Economic Incentive

Rae Kwon Chung, UN Director, is a breath of fresh air Rather than preach the benefits of cleaner air, he believes 'aim for the wallet'; economic incentives work. "Governments should change their tax systems, he said, increasing levies on gasoline and cars. Rechargeable batteries should be tax-free and disposable ones heavily taxed, he said, because batteries leak damaging chemicals into the environment when they are discarded." The one level GST was introduced by economists, but in the process we have given up our ability to influence social ends. Perhaps it is time this was reconsidered? And we can't do it without the economists. (from "Spotlight: A green foundation of cold, hard cash" by Thomas Fuller, International Herald Tribune, August 4 2006.)

Example 4. Local Government Contracts

This is one specifically for local government - Small is beautiful! Package your outsourcing contracts in as small a package as you can to make them accessible to local firms. Your community will benefit socially, environmentally – *and economically*! By taking on more of the contract management local government regains more control and provides more service to the community.

"It may well be that the knowledge of what ought to be done is already available in reports and research projects. This does not help us if we cannot effectively motivate people or be motivated ourselves to act." Bruce Kaye

To Achieve Socially Responsible Infrastructure— LEAD BY EXAMPLE!

Key Ideas

China & developing countries are rapidly adopting Western technology as they grow

This will put a huge impost on world resources and the environment

Morally, we cannot limit them in achieving what we have taken for granted

But we can lead by example

We can develop socially responsible infrastructure technology and make it available

Does it matter to us what is happening overseas? Consider the following:

- China has 200 million bicycles, but, in thrall to the motorcar, cities such as Shanghai are banning bicycles from many streets.
- Two and a half million new cars are being added to the roads every year (and rising)
- To meet this demand, China has been feverishly laying asphalt. Once completed, its planned new highways will cover an area equivalent to four equatorial laps around the earth. The consequences of this will be far-reaching. Paving 20,000 hectares of agricultural land (the road area needed for a million cars) reduces grain production by 80,000 tonnes. Yet China's agricultural imports increased by 63% during the first half of 2004 to a record half-year agricultural trade deficit of $3.73 billion. For a country where arable land is already in short supply, any reduction in agricultural land will have devastating consequences
- Cars made in China have a fuel consumption rate 10 to 15 per cent higher than those produced by developed countries
- Asians tend to think of railways as transport for the poor, so they favour building massive highways. Yet too many roads in densely populated countries is inefficient and bad for the environment. "over the weekend, the entire country [South Korea] becomes a parking lot" Rae Kwon Chung (in the International Herald Tribune article previously quoted)

And yes, it does matter, because we in the West are largely the cause!
Developing countries are still desperately poor and trying to catch up to the West. They have no scope to research and apply better, more environmentally friendly, more socially responsible technology. But we do! We can think of it as being altruistic or we can think of it as being first in a massive market.

China is already concerned at its increasing pollution levels. To quote Rae Kwon Chung again "The world should be grateful that China is not a democracy, because a centrally planned economy can react more quickly to the challenges of the environment". China (and India and Asia generally) is using established Western technology because (a) that's really all there is and (b) Western suppliers are heavily promoting it. In the end, their success will mean the world's failure.

Those countries that can encourage better, more socially responsible infrastructure technology have a huge potential market. We have the brains, we have the institutions like the Centre for Integrative Engineering Asset Management, - **but do we have the will?**

"In a climate of economic recession, the marketing of technological change as 'progress' relegates legitimate protest to the realm of 'non-survival. " Jean Buckley- Moran

"We seem to be turning away from an idea of social justice where the wealth of a society is more equally distributed. It seems as if we are returning to the vast social differences of the early nineteenth century, when large groups lived in poverty while a few lived very well indeed. " Shirley L Smith

What are YOUR Passions?

In this 200th issue of SAM, I have written about some of my passions for making asset management and infrastructure decision-making more relevant to the needs of the community.

What are YOUR Passions? You may think that, as one person, you have little chance to make a difference—but you do!

"If you believe you want to achieve something in life, do it while the fire in your belly drives you into action. Don't wait until the fire is burned down to the warmth of middle aged contentment." Bruce Sinclair

An Invitation

ACORN Inc. - www.acorninc.org - invites those who want to do something about the current state of infrastructure decision– making, those who are prepared to DO and to SPEAK OUT— to join with like-minded others to get things changed. Visit the website. Leave your name and telephone number and a Committee Member will ring you to talk about how to achieve what YOU want to achieve. (This is a self-help organisation formed to help us help our communities)

And a last example of why we need to speak out

Victoria's power stations and a leading water expert have backed a $1 billion state government plan to use Melbourne's treated sewage instead of drinking water to cool generators in the Latrobe Valley. The plan – which would increase Melbourne's water supply by 20% and make future water restrictions unlikely – won in principle support from the power industry and infrastructure specialist Rod Sims. But Yallourn power station operator TRUenergy wanred yesterday that if the 115 billion litres a year of recycled water proved more costly, this would push up power prices. The Weekend Australian revealed exclusively last Saturday that the radical recycling project had passed a feasibility study. Water Minister John Thwaites dismissed criticism by the Nationals and Local Government officials, who accused him of dumping Melbourne's sewage on Gippsland while taking the region's fresh water. ... But Treasurer John Brumby warned the long term scheme could cost as much as $2B. Rod Sims, a director of Port Jackson Partners consultancy, said the project did not seem too expensive for the amount of water it delivered. He supported the proposal but said desalination was another option and that **the cheapest choice was buying water from Goulburn Valley irrigators – a move the Government has ruled out.** "The Government should put out all the information that would allow us to make a decision." Mr Sims said.

And if it doesn't: we should do it for ourselves!