# Climate change – the art of re-perceiving

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Today I want to talk not so much about climate change itself (I'll leave that to Steve Hatfield-Dodds), but rather to raise some issues about how we think about problems such as climate change.

In a democracy public policy is driven, in large part, by the way we perceive problems. If, for example, we perceive air travel to be hazardous because of terrorism, our governments will allocate resources to airline security, even if an objective cost-benefit study suggests that the community may be better served, say, by more attention to road safety.

Sometimes there are vested interests wanting us to see a problem in one way and not another. Coal producers may want us to think about ameliorating the effect of coal-burning, rather than reducing our demand for coal. A government which has been reluctant to address climate change may want us to see the current dry as a normal "drought" rather than as a possible sustained change in climate. Medical lobby groups are not immune from such biases: there is a strong lobby which sees hospital waiting lists as a problem in hospital resources (a supply side perception) rather than an excess demand for hospitalization (a demand side perception).

In this session I want to outline five ways we may adjust our thinking on climate change. Not that I am suggesting, in some Orwellian way, that there is a "right" way of thinking, or that those who think otherwise are guilty of thoughtcrime. Rather, it is to suggest some different perspectives which may help us come to understand and to make sense of climate change and our possible policy responses.

These five re-perceptions are:

on wealth – to think beyond money; on environment and the economy – to get away from thinking of a tradeoff; on our time horizons – to think beyond tomorrow; on what we can do – the risk of tokenism displacing action; on science – adopting scientific method as part of our everyday thinking.

No doubt many, or most people in this room, are already thinking in these ways; if I'm preaching to the converted I hope you can use these ideas to confirm your own processes.

### 1. Wealth

It is easy to confuse money (which is simply a partial indicator of wealth) with wealth itself. Those who, in other times called themselves "insurance salesmen" (yes, they were inevitably male) now call themselves "wealth management consultants". Treasury officials tell us not to worry about household debt, because we are now much wealthier; our house which was worth, say, \$200 000 ten years ago is now worth \$800 000.

But are we really any wealthier? My house is much the same as it was ten years ago. If anything it has run down a little. There is more rust in the gutters, those cracks have widened a little ... Perhaps I have compensated with a coat of paint or a replaced carpet, but, in essence, its value to me is little changed.

Looking more broadly, there is a great deal of wealth that escapes money measurement altogether. Glenn Withers, former head of the Economic Planning and Advisory Council, lists five dimensions of wealth, or capital:

*physical* capital – our houses and other personal assets, plant and equipment, public infrastructure;

*institutional* capital – our parliaments, courts, universities, cultural institutions;

human capital - our stock of skills, qualifications and experience;

social capital – the mutual trust we enjoy as members of society;

environmental capital - the natural resources that sustain our life.

Only the first of these – physical capital – is ever picked up in our accounting systems, and even it is subject to many problems of measurement, as our house example shows. Our national accounts, which reveal such strong economic growth, are limited by what is known in accounting as "money measurement"; that is, they measure only those goods and services that are traded in markets and therefore subject to some measurable exchange.

Imagine, in health care, if we assessed people's well-being only on indicators that are easily quantified, such as body temperature and blood pressure, while ignoring most other indicators because they cannot be quantified, such as severe pain.

When Keynes developed a system of national accounts seventy years ago, he never intended those accounts to be used as an indicator of a nation's economic progress or wealth, but we have let that happen. There is a demand for quantification, and public policy can be unduly influenced by what is quantified.<sup>1</sup> And public policy is subject to the curse of reductionism: bureaucrats and politicians develop simple models of the complex world in which they operate and in time come to forget what those models exclude.<sup>2</sup>

Thus, when we dig up a tonne of iron ore and sell it to China, our national accounts may show an "income" of \$60, but there is no offsetting debit for the depletion of our stock of ore - it does not enter the mind of the policy analyst. When our forests are converted to woodchips, that is shown as "income", even though it should be offset by a depletion of our environmental capital. When global warming tips the balance between rainfall and evaporation in our wheat belt, there will be some monetary consequence in terms of reduced

<sup>1.</sup> See, for example, Peter Reuter "The Social Costs of the Demand for Quantification" *Journal of Policy Analysis and Management*, Vol 5, No 4. 807-824 (1986).

<sup>2.</sup> James C Scott Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed (Yale University Press 1998).



crop income, but this will be a vast understatement as it will measure only one year's result rather than the long-term depletion of our life-sustaining systems – our wealth.

Capital depletion – near Cooma, NSW

We need to escape from the limited way our politicians and bankers think about wealth, and to think about it in all its dimensions. Glenn's five dimensions provide a useful framework.

## 2. The environment and the economy

One of the stories from the Vietnam War is the statement "we had to destroy the village in order to save it".

While that story is apocryphal, it's not far from a more common political statement "we have to attend to the environment but only so long as it does not harm the economy".

We have come to think of the environment and the economy as belonging in different categories; indeed such categorization is present in the fashionable "triple bottom line" construction, which refers to "the economy" *and* "the environment" *and* "society", as if they are separable and as if progress in one category is at the expense of progress in another -- "we'll give up a little profit for the sake of society or the environment".

But there is no point in an economy that does not serve social ends. The triple bottom line way of thinking places the economy, the environment and society alongside one another:



It's neat, but it's muddled, for what is the point of an "economy" if it does not serve social ends? Sixty years ago, the Hungarian philosopher Karl Polanyi, who had experienced the tyrannies of fascism and communism, prophetically warned of the coming tyranny of the market, which could come to dominate all other social relationships. He pointed out that throughout most of history markets had been subservient to and contained within society, governed by society's norms, but that we may be heading towards a "market society".<sup>3</sup>

To labour the point, there is no point in economic activity if it does not serve social ends.

Similarly, it is not rational to separate the environment from the economy. Every economist working for Treasury Departments has learned, probably in their first undergraduate lecture, that economics is the study of how we allocate scarce resources. In this standard definition of economics there is no qualification to exclude natural resources. Yet, in economic systems ranging from Soviet Communism through to modern market capitalism, there is a tendency to leave most natural resources, particularly shared natural resources such as the atmosphere, out of economic consideration.

If we could bring all our assets to account, we would almost certainly find that we are living beyond our means. We are drawing down on our endowments of human, institutional, social and environmental capital, and are incurring liabilities to be paid in the future. The late Kurt Richebächer said:

I have always thought it was the duty of each generation to leave the next one a little better off. That means, each generation has to consume less than it produces.

Richebächer would not credit us with economic wisdom, and would give our government low marks for economic management. He would cite as evidence current opinion polling, which reveals that people believe the present government is competent in economic matters but is not handling climate change well. That shows a clear disconnection in our thinking.

Our omission of environmental resources from economics is bad economics, not only because it leaves out the scarcest of all resources, but also because it gives economics a bad name. It has meant that those concerned with the state of our natural systems have tended to become disengaged from the economic discourse, and, unwittingly, have contributed to the false notion that there is an intrinsic conflict between achieving environmental and economic goals.

Rather than the flawed "triple bottom line" I want to suggest a different, more inclusive way of thinking, in which we see society as prime, and



<sup>3.</sup> Polanyi, Karl. *The Great Transformation: The Political and Economic Origins of Our Time* (1945, Beacon Press edition 1957.)

the management of our scarce resources, including all those assets mentioned by Glenn Withers', as contributing to our social ends:<sup>4</sup>

#### 3. Time horizons

We want it all and we want it now. Gone is the notion that there is virtue in delayed gratification. We have become impatient for quick returns. We expect double digit returns from our superannuation funds and we have little notion of saving for our needs. With such thinking phenomena such as sea-level rises in fifteen or fifty years barely rate consideration – they're too far "out there" to worry us.<sup>5</sup>

That there has been a shift in our norms is beyond dispute, but there is a great deal of debate about details and causes.

Many researchers find that we are inconsistent in our time horizons; for some decisions we do show concern for the long-term while we are myopic about other decisions.<sup>6</sup> There is much speculation about the underlying causes of the shift. Some point to the huge unleashing of productive potential and therefore investment returns in the late twentieth century as markets around the world liberalized; this has given the impression that fast returns are the norm for any investment outlay.<sup>7</sup> Some attribute affluence itself as a cause; for many people there is no memory of hardship as even Keating's "recession we had to have" slips from memory.<sup>8</sup> Technological change itself has taken care of many demons we once feared: food production has easily exceeded the 1972 Malthusian predictions of the Club of Rome<sup>9</sup>; the Y2K bug was a non-event; new technologies are allowing for much greater energy efficiencies; new reserves of oil continue to be found. These have all led to a strong belief that easy, technical solutions will emerge to solve our impending problems.

In contrast to the views of the technological optimists Robyn Williams (the Robyn Williams of the ABC *Science Show*) suggests that prospects of environmental doom may be contributing to such short-termism. He summarizes the link with the aphorism "If you're on the *Titanic*, you may as well travel first class".<sup>10</sup>

We need to be realistic about the future. We aren't on the *Titanic*, but it isn't all plain sailing ahead either. Public policy in Australia, particularly at the Commonwealth level, has tended

<sup>4.</sup> This is an anthropocentric view; some will hold that values wider than human values should guide the allocation of resources, and would put the environment in a circle outside society.

<sup>5.</sup> At a discount rate of 10 percent a year a cost of \$1000 a year in 50 years is perceived as worth only \$8 now. At a discount rate of 3 percent a year the present value of the same outlay would be \$230.

<sup>6.</sup> See, for example, Richard Posner Catastrophe: Risk and Response (Oxford University Press 2004).

<sup>7.</sup> Elroy Dimson, Paul Marsh, Mike Staunton *Triumph of the optimists – 101 years of global investment returns*. (Princeton University press 2002).

<sup>8.</sup> See, for example, Avner Offer *The Challenge of Affluence: Self-control and Well-being in the United States and Britain since 1950* (Oxford University Press 2006).

<sup>9.</sup> Club of Rome Limits to Growth (1972).

<sup>10.</sup> Robyn Williams Future Perfect: What next and other impossible questions (Allen & Unwin 2007).

to be too complacent, for we have not been making the public investments in skills, infrastructure, technologies and environmental management that will provide us with some resilience against future stresses. An obsession with short-term budgetary balances and with financial bookkeeping at the expense of economic management has left us ill-prepared to make those economic adjustments which will be required by climate change. I will leave it to Steve Hatfield-Dodds to show how we might realistically cope with climate change without being rendered helpless by either fear or complacency.

#### 4. Tokenism

"Think global, act local" has been one of the rallying calls of the environmental movement. And we can act local. We can use green shopping bags, we can replace our incandescent bulbs with high efficiency bulbs, we can turn down the thermostat and wear a sweater. If we are a little more committed we can install solar heating or photovoltaics and buy a hybrid car.

But these initiatives will take us only so far, and, while they are all worthy in themselves, there is a risk that they will displace other action, particularly on the collective front. The term "Prius politics" has emerged to describe local tokenism distracting attention from more significant and global concerns. There is little point in having a few hybrid cars on the road if that simply gives space for more SUVs; on a global scale there is little point in one country going green if the only result is that it frees up scarce resources for other countries to burn.

We need community action, in our city, state and national governments. And we need global action: that means, for the foreseeable future, working through sovereign national governments, which are our representatives in multilateral international forums. In this regard Australia, in refusing to sign the Kyoto Protocol, has been absent from the table. Kyoto may have its limitations, but it so far it is the only forum with significant international legitimacy.

#### 5. Thinking scientifically

I'm not suggesting we should all be proficient in Einstein's equations or in plant physiology, but we do need to embrace more of the thinking that we have been exposed to in our education – particularly in fields such as nursing where we are taught the methods of critical thinking and analysis.

Skepticism is a necessary aspect of scientific thinking, and, indeed, we need a healthy skeptical mind when it comes to environmental claims. For example, we need to be vary wary when the coal industry makes claims about the benefits of carbon sequestration, or when politicians avoid any suggestion that the future may see very large price rises for electricity and gasoline.

But there are limits to skepticism, and science draws limits, as most health professionals would know. We cannot "prove" a link between smoking and lung cancer – there is the distantly remote possibility that all the studies confirming the relationships between smoking and cancer will be invalidated – but we accept that link as a reasonable proposition, and over time evidence tends to confirm our propositions regarding smoking and cancer. We study a

phenomenon like sudden infant death and take appropriate action, even though we don't have comprehensive research, for we will never have comprehensive research. If we were to withhold action until we had 100.00 percent certainty we would be frozen into inactivity.

So it is with climate change. There are skeptics, of course, and they serve a role as they do in any science, for they force a degree of rigor into scientific analysis. To suggest, as some do, that the existence of skepticism shows that climate change and its causes are not proven, misses the point, however. In empirical science no proposition is ever "proven". Rather, in the absence of refutation, we become more and more confident of our propositions, and the overwhelming majority of scientists have reached a high level of confidence that climate change is happening and that they know its causes. (There is less certainty about its consequences, however.)

Because the figures involved in warming are so small there is a risk that we underestimate the consequences. A temperature rise of two degrees from  $20^{\circ}$  to  $22^{\circ}$  sounds very little, particularly when we think in terms of absolute temperature – a rise from  $293^{\circ}$ K to  $295^{\circ}$ K is less than one percent. I heard an ABC interview with a farmer from the NSW wheat belt:

I don't know what the correlation is between climate change and this present dry period because I would have thought that climate change would only affect us around the margin, not so dramatically. But you do begin to wonder whether we haven't seem some sort of change in the environment which is causing this dry period.<sup>11</sup>



A drought? Near Moomba SA

In that statement we see a shift from "marginal" thinking towards a longer-term consideration, but public policy has still not caught up with this farmer's thinking. Governments still talk about "drought", which is a reference to a dry *spell*, rather than the possibility of long term climate change.

We need to be wary about our assumptions regarding the working of natural systems. We tend to think in linear terms – that the future will be a linear projection of the past. One of the best-researched simulations in behavioral economics is known as the pond problem:

<sup>11.</sup> ABC Radio National Breakfast 18 September 2007.

You have a small amount of algae in the bottom corner of your large pond and the algae has a doubling time of 48 hours. It has taken two years for the algae to cover half the pond. How long does it take to cover the other half?

The answer is two days. In terms of the background of this audience, any health professional familiar with the growth of cancers will know about the phenomenon of exponential growth.

Yet, when the pond problem was put to graduate students at Princeton University only about half got the right answer, and I can confirm similar results from my own classroom experience. Complex systems have complex properties. They exhibit behavior such as exponential growth, positive feedback and tipping. Small changes in inputs can have large, unforseen consequences.



#### Conclusion

We live in a democracy where politicians are unlikely to let their policy proposals become too disconnected from popular thinking. If that thinking is simplistic and short-term we cannot blame our politicians if their approaches are simplistic and short-term.

Perhaps, over time, politicians have succumbed to simplistic ways of thinking themselves. Perhaps the ministers in our present government do sincerely believe that statistics such as GDP growth provide a full measure of our economic progress – particularly when those figures confirm their belief in their own economic competence. Perhaps they do believe we will somehow be better off if we ignore climate change, or give it scant recognition with some token programs.

Even if a government (or a party aspiring to government) identifies the need for policy change, it faces a difficult task, for there are many of impediments making it hard for political leadership to emerge. We demand quick explanations – anything that cannot be explained in a thirty second TV grab is in the realm of the unexplainable. We are merciless on our politicians when they cannot provide quick, glib solutions to complex problems – costed to the last dollar with three year fiscal projections. We would consider it to be political suicide if a politician suggested we may have to pay more for our gasoline or air travel (a contrast with Churchill's promise of "blood, sweat and tears"). We want villains to blame for our problems – Bin Laden, greedy corporations or profligate American SUV drivers. And we impose simple performance metrics on our politicians, such as fiscal balance and GDP growth, all to be achieved over a three year period.

To change this the task is ours. We need to give room to our political representatives to exercise leadership on climate change – to engage us with these difficult problems. It is possible; we have faced big challenges in the past and can face this one.