Limiting Greenhouse Warming: Is It Worth the Cost?

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VARIOUS countries have negotiated the Kyoto Protocol in an attempt to limit national emissions of greenhouse gases. The object is to slow or halt the change of climate which may occur as a consequence of 'the enhanced greenhouse effect'.

One would have thought that the negotiations involved some sort of cost-benefit analysis, whereby each nation calculated whether the potential cost of its response to greenhouse warming is justified by the long-term benefit from a reduced impact of climate change.

In fact, no such calculations were made. Nor are they being made now.

We have a rough idea of the costs. Australia for instance (scarcely the biggest player in the global game of greenhouse climate change) has earmarked close to a billion dollars over the next few years to encourage industry to spend its own money on doing something about our national emission of carbon dioxide. We have absolutely no idea of the long-term benefit. For all we know, it may be a long-term loss.

This is a curious state of affairs in an age of economic rationalism. And it is not simply because the calculations are too difficult. While it is true that scientists cannot yet translate their general prediction of an overall warming to the specifics of what might happen in a particular region, and economists cannot yet predict the likely impact of a specific change of climate, these sorts of practical difficulty have not in the past stopped either scientists or economists from making calculations about the future.

The real reason is political. If there is to be a change of climate, the impact of the change will be beneficial to some and detrimental to others. There will be 'winner' nations and 'loser' nations. Inevitably, if the winner nations are identified by some reasonably legitimate calculations now, they will not be persuaded to join the rest of the world in costly greenhouse mitigation.

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There is, as well, a rather more subtle reason behind the lack of interest in calculations of long-term benefit.

Consider those climate-sensitive sectors of society which fit the mould of ordinary economics. Agriculture and forestry are obvious examples because the annual value of their production can be measured in dollars. Because one is simply talking about money, their value is subject to what the economists call 'discount for the future'. This is a fancy name for the bird-in-the-hand principle—namely, that most people would prefer to have a new widget now rather than the promise of a new widget in a few years' time. Indeed, the discount rate for purely economic items is fairly well-established at something like five or ten per cent per year.

Which means that, to us of the present generation, the value of (say) agricultural production 50 or 100 years from now doesn't amount to much, and it isn't really worth spending lots of today's money to limit its possible reduction in the future.

Thus there is almost sub-conscious agreement that, even if climate change is known to be detrimental to future economic production (a very far-from-proven proposition on the national scale) this is not much of a reason for spending today's money. This is why the arguments for limiting greenhouse emission and global warming tend to concentrate on preservation of bio-diversity and the environment. That is, they concentrate on those climate-sensitive aspects of society which are not easily assessable in dollars.

In fact, the environmentalist who is concerned about global warming has an interesting problem. He or she may be quite fond of the idea of assigning a dollar value to each and every aspect of the global environment so that, among other things, estimates of the long-term benefit of green-

house mitigation might be made. But to do so is to accept the tenets of ordinary economics, which include the necessity to accept a discount for the future. Choosing the rate of the discount has to be a value judgement which boils down to stating outright how far into the future the present generation should worry about (that is, spend money on) the welfare of its descendants.

The problem is that, for the long-term benefit to exceed the present-day costs, it turns out that one must choose a rate of discount which is less than about one per cent per year. (The actual value of the sector under consideration doesn't matter all that much.) Put another way, society must be persuaded to spend money for the benefit of generations more than a hundred years ahead. Bearing in mind that none of us is likely to have the personal acquaintance of those generations, it is by no means certain that society would be so persuaded.

The bottom line is that it is much safer not to attempt any quantitative assessment of possible future benefit. It is much simpler to maintain as loudly as possible that climate change is inherently bad because man has had something to do with it, and must be fought at every turn with as many resources as can be assembled. The almost religious righteousness of the argument translates fairly easily into political correctness, and from there into hard political action in the shape of the Kyoto Protocol.

So we will be paying not for long-term benefit but rather for present-day moral superiority. This is fine for most of us because moral superiority is such a nice feeling. On the other hand it is expensive.

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IPA

Education Agenda

KEVIN DONNELLY

The Education Olympics: What Place Australia?

How well is Australia travelling on the world stage?

Judged by the Sydney Olympics, we are world's best. Not only did we win the most medals per head of population, but the images and sounds of Sydney beamed around the world showcased us as a confident, energetic and can-do nation.

Unfortunately, winning at sport is not the only indicator of global success. At the same time that Cathy Freeman went for gold, our dollar dropped to a record low. Worse still, commentators such as Bill Gates questioned our info-tech ability and suggested that Australia was in danger of missing out on the benefits of the digital age.

Crucial to success in the new economy is a rigorous and competitive education system. Calls for Australia to be the 'knowledge-nation' reflect this imperative and, as shown by countries such as Ireland, it is possible to match Silicon Valley at its own game.

Is Australia's education system world's best? Judged by international tests like the Third International Maths and Science Study, the answer is 'no'. While we might be a nation of high achievers in sport, in education we drop to the middle of the pack.

The TIMSS study involved testing primary and secondary students from 45 countries in maths and science. Countries such as Singapore, South Korea, Japan, the Czech Republic and the Netherlands consistently perform at the top of the table.

Why do such education systems outperform Australia schools? In part, it is because countries such as Singapore and the Netherlands adopt a 'syllabus' approach to curriculum development. Teachers and students have a clear idea of what is to be taught and students are regularly tested.

Teachers, in particular in Asian classrooms, also spend most of their time actually teaching, instead of being 'facilitators'. In successful classrooms, there are fewer interruptions, students spend more 'time on task' and there is a strong expectation that all can succeed.

Finally, successful education systems focus on the essential knowledge, understanding and skills associated with academic subjects, and learning strategies include memorization and rote learning.

Although Australian schools once adopted a 'syllabus' approach, they now embrace a so-called 'frameworks' model. Instead of focusing on what students should be taught, frameworks detail what students should achieve or be able to do at the end of the process.

Instead of clearly defining essential learning, frameworks list outcome statements that are vague, imprecise and lacking in academic rigour. More importantly, the curriculum associated with a frameworks approach is a 'mile wide and an inch deep' and students fail to get a rigorous grounding in the basics.

While successful education systems clearly define and test standards at each grade or year level, frameworks embrace a developmental model. The result is that students are promoted from year to year without a realistic understanding of what they can or cannot achieve.

For most Australian students, the first time they sit an objective, com-