

There are times in the history of humanity when fateful decisions are made. The decision this year and next on whether to enter a comprehensive global agreement for strong action on climate change is one of them.

Or rather, in this case, a fateful series of decisions. The world will not arrive at a satisfactory single settlement in one meeting in Copenhagen, or in one meeting after that.

If things go well, the decisions of many governments will lead into a comprehensive global agreement in Copenhagen. That agreement will lead to the world taking major new steps on mitigation in all major countries. Substantial financial flows to developing countries for mitigation and adaptation will expand beyond recognition. Structures and incentives will have been established to support a large increase in investment in the new technologies necessary for mitigation to occur at reasonable cost.

If things go well, very well, Copenhagen will be the end of one process, and the beginning of others that will lead, over time, to effective global mitigation at a level that reduces risks of dangerous kind to an extent that seems acceptable to most informed people.

If things go badly, they could go very badly.

When human society receives a large shock to its established patterns of life, the outcome is unpredictable in detail but generally problematic.

Things fall apart.

The initial financial shocks that hit Australia in the 1890s, central Europe and the industrial world in the 1930s, or Indonesia in the 1990s, were in themselves substantial, but turned out to be small in comparison to the chain of events that followed. In themselves, these shocks could have been expected to cause a pause in growth, but not one that would throw history from its course. But each shock was large enough to exceed some threshold of society's capacity to cope with change. In each case, what might have been a recession of substantial but ordinary magnitude became a great depression. Total output fell by a fifth or more. The associated social convulsions changed political institutions fundamentally and as permanently as human institutions can be changed. They shifted the whole trajectory of economic growth.

Unmitigated climate change, or mitigation too weak to avoid dangerous climate change, could give human society such a shock.

The case for strong mitigation is a conservative one. Even at the levels of mitigation that now seem to be the best possible, the challenges could be considerable. In the absence of mitigation, we can be reasonably sure that they would be bad beyond normal experience.

We know that immense shocks unsettle basic institutions, with unfathomable consequences.

We know that the possibilities from climate change include shocks far more severe than others in the past that have exceeded society's capacity to cope, and moved societies to the point of fracture.

Here we are talking about global fracture.

If sea level rises by a metre or more this century and as much again in the first half of the next, and displaces from their homes the people of the low-lying coasts and river banks of the island of New Guinea, it will not be a problem for Papua New Guinea and Indonesia alone.

If sea level rises and displaces from their homes a substantial proportion of the people of Bangladesh and West Bengal, and many in the great cities of Dhaka, Kolkata, Shanghai, Guangzhou, Ningbo, Bangkok, Jakarta, Manila, Ho Chi Minh City, Karachi and Mumbai, it will not be a problem for Bangladesh, India, Pakistan, China, Thailand, Indonesia, the Philippines and Vietnam alone.

If changes in monsoon patterns and the flows of the great rivers from the Tibetan plateau disrupt agriculture among the immense concentrations of people that have grown around the reliability of water flows since the beginning of civilisation, it will not just be a problem for the people of India, Bangladesh, Pakistan, Vietnam, Myanmar and China.

There will be no islands of normality in Melbourne or Mildura, even if the same forces on climate have not displaced the people around the edges of Port Phillip Bay and scorched the economic life from the Murray-Darling Basin.

The problems of unmitigated climate change will be for all humanity.

During the discussions following the release of the Review's draft report in early July 2008, some critics said that my descriptions of impacts had been 'alarmist'. I responded that I was simply telling the story as it fell out of the analysis, when the emissions growth suggested by the Review's own work was applied to 'centre of the road' scientific judgments on the relationship between CO₂ concentrations and temperatures.

I was talking then about impacts in the middle of the probability distributions that come, as best we can judge, from contemporary science.

I did not then talk about some of the possible shocks that I am discussing now: shocks that until recently were a fair way along the 'possible but not very likely' end of the probability distribution, but have been moved closer to the centre by the Review's work on business as usual scenarios. Some shocks that would be severe and damaging that were once near the edges of the distributions are now near the middle. In the absence of mitigation, as we move beyond this century, some of these shocks move to the higher probability ends of the distributions. As noted in Chapter 11, without strong mitigation, the melting of the Greenland ice sheet, sooner or later, becomes something close to a sure thing.

In Chapter 2, the Review accepts the views of mainstream science 'on a balance of probabilities'. That formulation allows the possibility that the views on climate change of the IPCC and the learned academies in all of the main countries of scientific achievement are wrong.

There is a chance that they are wrong. Just a chance. But to heed instead the views of the minority of genuine sceptics in the relevant scientific communities would be to hide from reality. It would be imprudent beyond the normal limits of human irrationality.

It is prudent to give the major weight to the mainstream science. This is fully compatible with investing more in improvement of knowledge to narrow the dispersion of the probability distributions. The improvement of knowledge, the narrowing of uncertainty, the sharpening of predictions: all these can and should proceed alongside the commencement of international collective action in pursuit of strong mitigation.

The annual costs of strong mitigation continue to increase over the first half of the century. The mitigation process can be cut short, with due notice to those who have committed their capital to a new economy of low emissions, if at any time the international community comes to the view that new scientific knowledge establishes that the concerns of 2008 were erroneous to the extent that mitigation judgments based on them have become obsolete. Mitigation could come to a stop in 2020, for example, on the basis of new knowledge that it was unnecessary, after mitigation had been put in place to return to concentrations of 450 ppm.

In this case, Australia would have paid 2 per cent of GNP as insurance against what would otherwise have been a high risk of immense damage. It would be a high price, but one that was reasonable on the basis of the evidence available at the time when decisions had to be made.

The consequences of inaction now are not similarly reversible. The arithmetic of Chapter 3 about the new patterns of global growth takes away the time we may once have thought we had for experiment, talk, and leisurely decision making. It tells us that business as usual is taking us quickly towards what the science tells us are high risks of highly disruptive climate change.

So fateful decisions are to be taken at Copenhagen.

The analysis of the current international situation in chapters 8, 9 and 10 tells us that a good outcome is not assured.

The international community is on a course plotted before the implications of the current era of growth we call the Platinum Age had been absorbed into its decision-making framework. It is on a course plotted before humanity had absorbed the implications of the acceleration of economic growth in the early 21st century; the concentration of that growth in economies at the stage of development when growth absorbs huge amounts of energy; and in countries where coal is the cheapest and most convenient energy source. New knowledge changes the calculus.

The old calculus said that there was time—time for all developed countries to take the early steps in mitigation, and then for all developing countries to join at a later unspecified date. The old calculus said that it was good enough for the developing countries to begin to contribute through the Clean Development Mechanism and in other ways that made no additional contribution to the

global mitigation effort, beyond commitments that the developed countries had already made.

The Review's updated projections show that approaches based on the old calculus will not hold the risks of dangerous climate change to acceptable levels.

Success at Copenhagen is not an agreement along the lines of the Bali Roadmap. Success will need to build on the foundations of Bali and earlier UNFCCC agreements, because there is no time to start again. But the content of any agreement will need to go beyond what had been contemplated at Kyoto and Bali.

Success at Copenhagen requires agreement to large emissions reductions from developed countries, plus agreement on a framework for early contributions to mitigation from China and as soon as possible from other successful developing countries.

This formulation underplays the importance of another part of the contemporary reality. It is much more likely that effective mitigation from developed countries will be achieved within a comprehensive global mitigation regime. Developing country participation would remove competitive distortion in trade-exposed industries. It would demonstrate to the polities of the developed countries that their contributions are not pointless self sacrifice, but part of a solution to the global problem of climate change.

So success at Copenhagen, or at subsequent meetings convened for the purpose, must encompass inclusion of developing countries in a global mitigation regime. The arithmetic of Chapter 3 shows that the participation of China is urgent. Comprehensive participation, beyond China, is necessary for the political and economic viability of the regime.

So the fateful decision at Copenhagen is not just about whether there will be a comprehensive regime.

It has to be a *credible* agreement. This means that the sum of national commitments must 'add up' to the environmental objective.

Chapter 9 set out a principled basis for global agreement that meets these objectives and places manageable obligations on developing countries with a reasonable chance of acceptance. The Chinese constraints, which the arithmetic says must be binding, are consistent with domestic goals that the government of China has set for itself. For other developing countries, acceptance of constraints would not be binding, but there would be large advantages for them in participating. The trajectories for emissions constraint, based on modified contraction and convergence, would provide opportunities for them to do better, and to sell surplus permits, providing new economic opportunities. Acceptance of constraints would allow developing countries access to the low-emissions technology and adaptation funding commitments of the developed countries. They would avoid the disruption to trade that might come to be associated with standing aside from international cooperation on mitigation.

Let us be clear about the contemporary reality of global mitigation, and of the gap between where we are and where we need to be. There are few countries

in which mitigation policies have yet had a substantial effect on emissions reduction. The large reductions that have occurred in some countries have come from structural change that was not associated with mitigation policies. Global expenditure on low-emissions technologies has been at a low ebb—much lower than had been induced by the high oil prices of the 1970s. No developed country has yet put in place policies that can be reasonably expected to achieve its share of the reductions in emissions necessary for 550 ppm concentrations objectives, let alone something more ambitious. While China and some other developing countries have implemented policies that are moderating the growth in emissions, no developing country has been willing to concede that binding emissions constraints should also apply to its own economy.

The first essential step at Copenhagen is a comprehensive global agreement that adds up to the environmental objective to which it is directed.

Achievement of a comprehensive agreement around a 550 ppm objective would be a step forward of historic dimension. Such an achievement and its effective implementation would avoid the worst outcomes from unmitigated climate change. It would give confidence to the international community that cooperation is possible in this difficult sphere. Once in effect, alongside a low-emissions technology commitment, it would unleash forces for innovation and structural change that would demonstrate that strong mitigation was consistent with continued economic growth, and bring more ambitious goals into the realm of the possible. It would bring the next step to 450 closer to reach.

Effective comprehensive global agreement around a 450 ppm objective, if it were realistic in conception and implementation, would be better still, for Australia and for the international community. It would be 450 ppm with overshooting, because we are already at around 450 ppm and this level will go much higher before the momentum of emissions growth is slowed, halted and then turned around.

The numbers that add up to a 550 ppm global objective seem not to be impossible for the separate sovereign nations that will have to form the view, one by one, that acceptance and compliance is in their own interests.

The numbers that add up to 450 ppm are not yet within the decision frames of the people who will need to commit to them. More ambitious numbers may become feasible, and sooner rather than later, through the building of confidence from the early years of successful implementation of a 550 ppm regime.

There is much that we do not know about the future costs or possibilities of low emissions technologies, as there is much that we do not know in climate science itself. Chapters 20, 21, 22 and 23 describe the possibility that the incentives provided by a substantial and rising carbon price, and public fiscal support for investment in innovation, could lead to large reductions in the cost of structural transformation. In the nature of things, we will only learn by doing. It is important to start taking the measures we need to take within carefully designed institutional frameworks.

The difference in environmental outcome between successful achievement of a 550 ppm objective and of a 450 ppm objective is substantial for Australia, as

demonstrated in chapters 6 and 11 in particular. But it is small compared with the difference between 550 ppm and the complete failure of mitigation. The difference between 550 ppm and 450 ppm is small compared with the difference between 550 ppm and emissions growth remaining anywhere near its current course.

The fateful decisions at Copenhagen will be for all sovereign nations. But the fates will be set long before December 2009. They will be set in the earlier national policy decisions taken by many countries, including Australia.

The Review's conclusion that it would be in Australia's interests for the world to agree on commitments that add up to a 450 ppm objective, and which is capable of implementation, is the basis of our recommendation that Australia express its willingness to do its full, proportionate part in such a global agreement. But Australia and the world have an even bigger interest in ensuring that realistic and comprehensive global mitigation is begun around some attainable mitigation objective as a result of Copenhagen.

Australia will matter to the international community's fateful decision. We can make a difference by announcing at an early stage that we are prepared to play our full proportionate part in an ambitious global mitigation effort. We can take the lead in a global effort to commercialise carbon capture and storage technologies, that would, if successful, greatly ease the adjustment to low-emissions economies of the developing world, and incidentally preserve a future for Australia's coal industry. We can take the lead in promotion of the International Low-Emissions Technology Commitment, and by commencing with a national commitment.

Australia can take the lead by building on what we have already begun, in establishing productive cooperation on climate change issues with our neighbours, first of all Papua New Guinea and Indonesia. An example of successful cooperation that was advantageous for development, including in low-emissions technologies, adaptation and permit trading, the latter covering forestry and all other emissions, would be influential.

Australia can take a lead by placing in the international marketplace for ideas proposals that add up to realisation of a global environmental objective. Australia would do this not with any arrogant insistence that this is the only proposal to be considered, but making it clear that we would also want to consider alternative proposals, developed in other countries, that add up to specified objectives.

Australia could suggest that a number of heads of government with commitments to a strong outcome at Copenhagen each appoint a representative to a group of experts. This group would be given the task of coming up with a practical approach that adds up to defined environmental objectives for consideration by leaders in the lead-up to Copenhagen.

Australia can take a lead by preparing to implement at reasonable cost the full range of mitigation programs necessary to meet the commitments that we make to reduce emissions. Australia will be more effective if we are introducing a well-designed emissions trading system. It will help if Australia makes it clear that we are proceeding in any case with national mitigation, within the parameters suggested in this report.

It is sometimes said that Australia's influence would be greater and more positive if, in the absence of comprehensive international agreement, we would unilaterally implement much more radical reductions in emissions than those put forward in Chapter 12. This neglects the economic reality. A world of partial mitigation, in which individual countries do their own thing, is a world in which mitigation is more difficult and more expensive. To go it alone beyond certain levels of ambition would be to demonstrate the problems rather than the feasibility of mitigation. It is doubtful that this would encourage the global mitigation effort. It may deter it.

So the fateful decision at Copenhagen will follow many decisions in Australia and elsewhere between now and then.

And after Copenhagen, there will be more big decisions to be made. If there is a comprehensive and effective global agreement, the scene will be set for reconsideration of ambition once it has been demonstrated that mitigation is consistent with continued economic growth.

If there is no such agreement, the outlook is an unhappy one.

On a balance of probabilities, the failure of our generation would lead to consequences that would haunt humanity until the end of time.

