

**Submission to the Senate Inquiry into
Implications of climate change for Australia's national
security
by
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“A phenomenon noticeable throughout history regardless of place or period is the pursuit by governments of policies contrary to their own interests. Mankind, it seems, makes a poorer performance of government than of almost any other human activity. In this sphere, wisdom, which may be defined as the exercise of judgment acting on experience, common sense and available information, is less operative and more frustrated than it should be. Why do holders of high office so often act contrary to the way reason points and enlightened self-interest suggests? Why does intelligent mental process seem so often not to function?”

- *Barbara W Tuchman, The March of Folly: From Troy to Vietnam, Alfred A Knopf, New York, 1984*

There are two critical existential threats to human life on planet earth. The first threat is Armageddon created by nuclear war. The challenge of preventing nuclear war has shaped international affairs since 1945 with limited success, given current signs that we are failing in the effort to prevent the spread of nuclear weapons and manifestly failed to eliminate them. In the context of nuclear war our future will be determined by a few people; those who hold the keys to executing the launch of nuclear weapons either by accident or by intent. Most of us will play no role in this event even though it will almost certainly impact on us all. The planet will still exist, but most life on earth will be extinguished.

The second threat to human life on the planet is generated by global warming through the direct and indirect consequences for a changing earth environment. Human beings are the most predatory species that has ever existed on this planet. Furthermore, the population of the planet, which stands

at about 7.5 billion people today, has yet to peak at a possible 10 billion people.

Scientists and other experts have been building scenarios about future life on earth which lay out some of the problems we may have to confront if we cannot hold down average global warming temperature increases to small increments. Scientists have also been telling us for at least the last 30 years that actions to curb the exploitation of planetary resources by human beings are critical to minimising global temperature increases because of uncertainties about our prospects, and that time to resolve the issues for the better keeps getting shorter.

There are two major differences in these existential threats. On one hand, with nuclear war the time taken to create Armageddon will be very short, and impossible to deal with once the process begins. On the other hand, with global warming, climate change, and other environmental consequences, the time taken to eliminate all human life on earth might take decades, and it will likely be very ugly, and involve indeterminate processes for all of us.

The huge volume of evidence assembled by the scientific community has given us overwhelming reasons to take decisive action to change our ways to prevent this future. These are the kinds of perspectives that laid the foundation for an important book written by Martin Rees, in the early part of this century¹. In his perspectives on the enormous opportunities and risks for fundamental change now taking place Martin Rees has postulated that there is an estimated probability of one in two that no human beings will exist on planet Earth in the year 2100.

For this reason, and drawing on my own experience over nearly 42 years of service with the Navy, I believe urgent action is needed to head off the potentially disastrous consequences of failing to take decisive action to deal with the earth environment, if the unacceptable probability is that the legacy we will leave to our children, and their children, is their extinction.

The quote from Barbara Tuchman heading up this submission is a short reminder about the responsibilities and accountabilities of our political leaders. I believe most governments on the planet today are failing their people by not

¹ Martin Rees, *Our Final Century*, 2004. Lord Martin Rees, one of the world's most eminent astronomers, is an emeritus professor of cosmology and astrophysics at the University of Cambridge and the UK's Astronomer Royal. He is one of the key thinkers on the future of humanity in the cosmos.

taking decisive action to mitigate climate change and environmental consequences that result from global warming, and fostering every means of adapting to the circumstances we face using all the resources available. Even after the COP 21 Paris Agreement² I think our current posture as a manifest failure of leadership. I would like to believe that at some point in the future those who have failed to secure a bright future as a legacy for our successors will be held to account.

This Senate inquiry is welcome. The terms of reference focus on climate change consequences and their impact on national security. This focus may be insufficient given assessments about the structure and functioning of the Earth System after the Second World War contained in *The Trajectory of the Anthropocene: The Great Acceleration*³ because of “phenomenal growth of the human enterprise, both in economic activity, and hence consumption, and in resource use”. As well, it is observed that we should take note of this judgment:

“Will the next 50 years bring the Great Decoupling or the Great Collapse?”. The latest 10 years of the Great Acceleration graphs show signs of both but cannot distinguish between these scenarios, or other possibilities. But 100 years on from the advent of the Great Acceleration, in 2050, we’ll almost certainly know the answer.”⁴

The accelerating impact on the changing climate drawn from the indicators shows that very little has changed over the last two decades. Prospectively, this means many of the scenarios we have been looking at will occur much sooner and potentially more frequently than we have expected. These possibilities will present serious challenges to our national security.

We know that of seven continents Australia is likely to be the continent most affected by a changing climate. We will suffer great effects from these changes, such as new weather patterns; droughts; sea level rises and storm surges because we have substantial urban infrastructure built on the coastal fringe; ravages of more intense and more frequent heatwaves and tropical revolving storms. The effects of these changes will bring natural and man-made disasters that will bear significantly in places where building codes and community preparations are insufficient to deal with them, and communities lack resilience.

² Held 30th November till 11th December 2015.

³ Will Steffen et al, *The trajectory of the Anthropocene: The Great Acceleration*, The Anthropocene Review, 2015

⁴ Ibid, p14

In late 2014 and early the following year I became aware that due to the political climate at the time the Defence White Paper(DWP) in preparation was likely to omit any reference to climate change and the insecurities that flow from it. As a consequence, a small group of people, including me, sought out opportunities for influencing a better result by engaging interested think tanks in an effort to reverse this situation.

Two special reports were prepared and released into the public domain in 2015. The first report was released by the Centre for Policy Development in June 2015⁵. It was significant in terms of the public exposure of the issues it set out and the need for the ADF to begin work taking them seriously. The second report followed 3 months later. Both reports received good media coverage.

Released in Sydney on 22nd September 2015 the Climate Council Report “*Be Prepared: Climate Change, Security and Australia’s Defence Force*”, of which I was one author, highlighted the fact that in Australia our defence force had been lagging significantly behind the US and UK militaries in preparing to deal with the challenges created by a changing climate. At the time, we were also clearly lagging behind our NZ Defence Force colleagues. The release of the Report was followed by a sequence of two round table conferences in Canberra⁶ to bring together experts to develop a plan of action intended to ensure that climate security considerations would be an integral component of defence planning.

In March last year, the Defence White Paper⁷ was released; it included significant references to climate change that established a basis for Defence to catch up to our allies, and important partners.

A key finding set out the DWP is:

“Instability in our immediate region could have strategic consequences for Australia and we will continue to take a leading role in providing humanitarian and security assistance where required. Within the South Pacific, variable economic growth, crime and social, governance and climate change challenges will all contribute to uneven progress and may lead to instability in some countries.”

⁵ Sturrock R and Ferguson P, *The Longest Conflict: Australia’s Climate Security Challenge*, Centre for Policy Development, June 2015

⁶ Dates were 23rd September 2015 and 12 April 2016

⁷ Commonwealth of Australia, *Defence White Paper 2016*.

While the position nearly two years ago may have looked alarming it cannot be interpreted as meaning that the ADF had been doing nothing about climate change planning. In truth, the ADF had been looking at the security impacts of climate change since 2007, and Defence's record in environmental management, in planning and actions to preserve the environment has been generally good, with few exceptions.

Without doubt, in my view, in the seven-year period after the release of the Climate Commission report *The Critical Decade: Climate Science, risks and responses*⁸, Australia's climate change credentials have suffered from a serious lack of political leadership. But, in this same period our key allies and partners had, however, taken a different pathway and so by the end of 2015 they had overtaken us comprehensively in terms of including climate change priorities in national security assessments and integrating climate change impacts fully into their defence planning.

Two years after the Climate Commission warned that 2011-2020 is the 'Critical Decade' for tackling climate change it issued another, updated, report *The Critical Decade 2013: Climate Change Science, risks and responses*⁹. This report noted that time was already running out in which major policy changes by 2020 could turn around rising emissions of greenhouse gases, and put us on a credible pathway to stabilising the climate system.

Now, over half way through the "Critical Decade", many consequences of climate change are already evident, and the risks of further climate change impacts are becoming better understood. There is a possibility that it is already too late to obtain the outcomes we desire by heading off instabilities and significant disruptions in Australia and in the region. It is also clear that global society must virtually decarbonise in the next 30-35 years. This means that most of the fossil fuel reserves must stay in the ground because the burning of fossil fuels represents the most significant contributor to climate change.

From today until 2050 we can emit no more than 600 billion tonnes of carbon dioxide to have a good chance of staying within a 2°C limit. Based on estimates by the International Energy Agency, emissions from using all the world's fossil fuel reserves would be around five times this budget. Burning all fossil fuel

⁸ Climate Commission, Commonwealth of Australia (Department of Climate Change and Energy Efficiency), May 2011

⁹ Climate Commission, Commonwealth of Australia (Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education), June 2013

reserves would lead to unprecedented changes in climate so severe that they will challenge the existence of our society as we know it today.

We are already seeing the social, economic and environmental consequences of a changing climate. Many of the risks scientists warned us about in the past are now happening.

- Heatwaves: The duration and frequency of heatwaves and extremely hot days have increased across Australia and around the world. The number of heatwaves is projected to increase significantly into the future.
- Bushfire weather: Climate change has already increased the risk of extreme fire weather in some parts of Australia, especially the populous southeast.
- Rainfall patterns are shifting. The southwest corner of Western Australia and much of eastern Australia has become drier since 1970. The southwest and southeast corners of Australia are likely to remain drier than the long-term average or become even drier.
- Sea-level rise: Global average sea level is now rising at a rate of 3 cm per decade and will continue to rise through the rest of this century and beyond, contributing to an increased frequency of coastal flooding around the world including Australia. For example, Fremantle has already experienced a three-fold increase in high sea level events since 1950.
- Health: Heat causes more deaths than any other type of extreme weather event in Australia. Increasing intensity and frequency of extreme heat poses health risks for Australians and can put additional pressure on health services. Changes in temperature and rainfall may allow mosquito-borne illness like dengue fever to spread south.
- Property and infrastructure across Australia has been built for previous climatic conditions and much of it is ill-prepared to cope with increasingly frequent and/or intense extreme weather.
- Agriculture: Changing rainfall patterns and increasing risk of extreme heat and bushfire weather present challenges for Australian agriculture.

Production of temperature- and water-sensitive broadacre crops, fruit, vegetables and wine grapes needs to adapt to these changing growing conditions or move to locations where growing conditions are becoming more amenable for their production.

- Natural ecosystems: Many Australian plants and animals are already responding to climate change by changing their distributions and the timing of life cycles. Climate change, in combination with other stresses, is increasing the risk of species extinctions and threatening many iconic ecosystems including the Great Barrier Reef, Kakadu National Park and the alpine zone.

Military forces around the globe perceive climate change as a threat multiplier¹⁰ because its impacts can seriously undermine individual and societal well-being. The anticipated impacts will affect the availability of food, water and energy creating basic insecurities, as well as fostering migratory movements forced on people by sea level rises and the greater frequency and intensity of extreme weather events such as storms, floods, and heatwaves. These pressures have the potential to lead to conflict.

A Scenario

As an example of the possibilities that might overwhelm us I reference the report prepared by the Global Military Advisory Council on Climate Change issued in May 2016¹¹ which concludes there could be unprecedented large-scale migrations both within and from South Asia because of climate-related natural disasters. This report puts part of its microscope on the consequences of the disappearance of the glaciers of the third pole based in the Tibetan Plateau/Himalaya-Hindu Kush ranges, which feed reliable fresh water into the major river systems that deliver fresh water into China, the Mekong Delta, Myanmar, Bangladesh, India and Pakistan. A serious shortage of fresh water brings famine; starving people are a very serious security problem. The report concludes by stating that actions must be taken now to head off the extreme effects flowing from water, food and environmental insecurities. Noticeably, India has already constructed a fence along its border with Bangladesh which is patrolled by armed soldiers to keep people out!

¹⁰ A threat multiplier is defined as a factor that exacerbates the negative effects of other drivers of change.

¹¹ Climate Change and Security in South Asia, GMACCC Paper No2, May 2016

The problem is that, on current estimates, these countries together will have an aggregate population of about 7 billion people by 2050. These countries are also a major part of the Indo-Pacific region. The question then becomes “what will happen if starving people on the rim of Asia are looking for a new home?”

Historical evidence suggests that under such circumstances mass migration of these people will occur. It follows that several tens of millions of people might seek better fortunes in Australia and possibly New Zealand. Most other options for settlement in our region would already have high population densities.

Our security forces, and all arms of government, would be overwhelmed in such a scenario.

Australia’s Defence Force

At the COP21 talks in Paris, which set the current action agenda to deal with climate change, Australia should have been providing the kind of regional leadership that we had in the past. But at the time our regional leadership and presence, important matters for the ADF, had been overtaken by the NZDF which was very proactive, and the Pacific Command in Hawaii who had been ordered directly by the US government to establish clear leadership in the region on climate change matters. These missed opportunities continue to damage our reputation in the near region

In the Climate Council sponsored report of September 2015, we pointed out that climate change presents two types of risk to the ADF: capability risks, and geo-strategic risks.

On capability risks we see the potential for coastal flooding and heatwaves to disable military infrastructure and thus undermine defence preparedness and readiness as well as undermining defence sustainment, perhaps through the effect of extreme heat on the health of our troops. These effects can be ameliorated through sound forward planning. We also have a totally fossil fuel based defence force which means that energy security measures, through efficiency and storage measures, should become “business-as-usual” for our military.

With the addition of new, capable, platforms to the force structure such as the Canberra Class ships we have enhanced our platform capability for undertaking

humanitarian assistance and disaster recovery (HADR) missions. But this kind of work is also manpower intensive as our deployed forces often have to deal with traumatised victims of natural disasters. When we look at an ADF whose personnel ceiling has been set at about 58,000 full time personnel we may ask if we would have sufficient personnel in the present force. This also invites questions about resilience in our communities and supplementations from civil agencies and NGOs.

As growth in the Asia-Pacific region reaches towards 7 billion people and our own Australian population heads towards 40 million we may see the effects of all these risks and vulnerabilities placing serious limitations on defence force assistance to the civil community (DACC) tasks in Australia and our ability to help in HADR tasks in our region.

For geo-strategic risks, we may also fail to provide the kind of leadership other countries in our region expect.

It was leadership in both the US and UK that had driven their military forces to take action to integrate the potential disruptions from climate change impacts into core defence planning processes. In both countries, it was the law makers who spearheaded the charge. For example, in the US we know that US Pacific Command sees rising sea-levels to be a significant threat to people in geographically vulnerable locations. The integration of climate-related risks management into planning processes has led to a range of specific measures designed to facilitate early responses to disaster situations and provide US leadership throughout the region and capturing lessons learned into a comprehensive data base.¹²

In New Zealand, a progressive NZDF took on these issues as core planning drivers as early as 2011.

The Australian Defence Force is trying to catch up to our allies. But it cannot do this all by itself! This will take political leadership, as well as strong commitment from our senior officers. There is much at stake for our security and for our reputation in our region and in the Australian community.

¹² The detailed action report is shown in the DoD Report "*National Security Implications of Climate-Related Risks and a Changing Climate*" submitted to US Congress on 23 July 2015.

Military Planning Principles

In this submission, I cannot cover in detail all the science or the risks posed by the manifest failures or the shifts in dialogue about threats and consequences from climate change¹³. I will, however, focus on decision-making because it requires an understanding of the war metaphor to appreciate the extent of our present failure!

There are two principles we use in military planning. The first principle is the consistent endeavour to ensure that our information and assessments (intelligence), and capabilities are matched to deal with credible contingencies within available warning time. This work lies at the heart of our defence planning processes requiring careful attention and a great deal of resourcing to obtain the capabilities and the services of good, highly qualified people as a basis for preparedness.

The second principle centres around the need for readiness to deal with contingencies that may be anticipated, or unexpected, that is at short notice. This requires a process of recruitment, training, and equipping of forces that remain at short notice ready to conduct operations. In conflict, we know that military operations involve potentially very high risks of death and injury to deployed forces. In operations-other-than-war the risks do not disappear entirely, but they are commensurate to the tasks to be undertaken, with precautions being taken where necessary to prevent escalation.

I believe a similar approach, using the same principles should be used to deal with climate change and its possible consequences.

For example, as the architect of the security operation carried out in East Timor in 1999 the principles underpinning the eventual UN mandated operation held true: they also work when we are thinking about climate change. We had a bad situation on the ground in East Timor, over which we pondered the key questions of what is going on and how best can we deal with what we see? We did not have perfect information about what is taking place and we could not be sure how our intervention might play out. Yet in the strongest traditions of the military we carried a very successful operation without perfect knowledge of what we might have to do!

¹³ Dunlop Ian and Spratt David, *Disaster Alley: Climate Change, Conflict and Risk*, Breakthrough, Melbourne, June 2017

Conclusion

The failure in leadership is exacerbated by a failure to understand the importance of bringing about fundamental change in the conduct of our businesses and every other aspect of the way we lead our lives to give some hope of a bright future well into the next century. In short, we must urgently build civil society around the structure of a sustainable planet in which the burden of human population does not deplete the earth's resources and managers the environment responsibly.

Finally, I am critical of the perception that everything can be managed all right if we only know how to clean up the mess once it has been created – however this might happen. The ADF, and its partner organisations, has been very good at responding to emergency needs this century with only a few exceptions. I caution, however, that we are approaching a time soon when there will be a serious possibility that no amount of effort in deploying the limited resources we have available will be able to ameliorate the national security problems and challenges we are confronting.

We need to take decisive action now to head off the most unpalatable of climate change outcomes and this requires strong, determined leadership in government, in business and in our communities.