

Current Climate Trajectory for Australia and Health Impacts

“ Communities in Climate Change: social and equity impacts of climate change and the community sector”

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Professor David de Kretser, the Governor of Victoria, and Mrs de Kretser, Colleagues, Ladies and Gentleman.

Thank you for the privilege to speak to you today- it is indeed an honor to be amongst people who are so committed to the cause of social justice in the community- who choose to dedicate their daily work and creative energies to helping the most vulnerable and needy in our society.

I am here- as a proud Victorian, as a researcher and as a doctor and my task for today is, if I can use a medical metaphor, to provide some sort of *diagnosis* regarding the health impacts of climate change, and more- to answer the question so often asked of doctors- “ *what is the prognosis?*”

And as you invite me, to sit on the end of bed, if you like and attempt to answer two questions; *how will climate change affect health?* And *what can we expect in the coming decades?* - I know something important that all doctors quickly learn- *that hope and trust in the future are at least as important as the facts.*

So as we walk through the science of climate change, what we have learnt from the IPCC (Intergovernmental Panel on Climate Change) report, what we have learnt since, and what it means for health globally and in Australia- *I encourage you* to listen with cool minds, hopeful hearts and with your hands ready to do all that must be done- as Australians have always done when facing adversity – and I know that, “*We Will Triumph!*”

As a mentor in Al Gore's Climate leadership program my first inclination was to present to you another PowerPoint slide show as I have been doing over the last few years. – you know the one- pictures of our earth from space, glaciers crashing into the ocean, and animations of cities being swept away by rising seas. But you don't need to *see* these images again to know that our state is under stress- we can *smell* the smoke in the air, we *hear* no rain on our roofs, we can *feel* the heat and sweat. And we *know* numbers like 46 and 48 are best reserved for half time scores at the MCG, not temperature forecasts.

At the same time as scientists, we know that causation can be a slippery concept, and we *need to be very cautious with inferences about climate change*- even at this very sensitive time when our thoughts and condolences go to families affected by the Victorian fires, I don't think we can skirt the question that many have asked- In my view, *we cannot say that climate change caused the fires*. The fact is that fires do happen in rural Victoria, as they did on Ash Wednesday and in 1939, and before then too, and the causes are complex and not all related to climate.

But it is also fair to say that *climate change may have been a factor in setting the scene, loading the dice* as Professor David Karoly, head of Victoria's climate change taskforce, puts so well. Climate change is likely to have been an important contributor to *unprecedented maximum temperatures on 7 Feb 2009* and the *record setting heat wave* that led up to it in late January. And at the very least recent weather events in Victoria may be giving us a taste of what climate scientists say we can expect in coming decades.

None of this is surprising to those who worked on the Nobel prize winning IPCC report, and who said back in 2007, and I quote, *"An increase in fire danger in Australia is likely to be associated with a reduced interval between fires, increased fire intensity, a decrease in fire extinguishments and faster fire spread. In south-east Australia, the frequency of very high and extreme fire danger days is likely to rise 4-25% by 2020 and 15-70% by 2050."*

I believe that the IPCC report is such a profound piece of work that that future generations will study it when reflecting on what our generation chose to do at this time- its a must read, even just the executive summaries, for those who are serious about protecting vulnerable populations. This systematic review of published science in the peer reviewed literature represents ***an urgent call from scientists, to the world, about the looming risks of climate change and where we should be looking for solutions too. And what's interesting is that we already have the technology for many of the solutions if we choose to put them in place.***

The IPCC's messages are simple, ***greenhouse gases in the atmosphere are rising, global average temperature is rising, its highly likely that its us causing it, especially by burning fossil fuels.***

It reports that climate change will threaten the ***basic building blocks of civilization- water*** will fall in different regions and may rise in the oceans, ***food*** will thrive in some places but in more places agriculture will weaken, and our ***shelters*** may no longer be safe from extreme weather events- and we will need to have a ***major rethink*** about how we set up our communities and our cities in a world that is warmer.

And since the IPCC of 2007, which is in some sense outdated, the news has not been entirely joyous and ***there have been at least three important developments.***

First, the arctic is melting more rapidly than anticipated. Professor Jim Hansen director of Nasa's Goddard Institute for Space Studies warns that the Arctic is disappearing more quickly than predicted and that the world may soon see its first ice free summer. The loss of our northern icy mirror would leave a vast blue ocean exposed to soak up the warmth of the sun, further contributing to warming already underway. It's like a kid dropping his lemonade icy pole on a sunny day- ***not happy!***

A second realisation is that reversing climate change may be harder than we thought. We've recently learnt from Susan Solomon from NOAA (**National Oceanic and Atmospheric Administration**) in the US that even if we can reduce greenhouse gases in the atmosphere, changes underway may not be reversible- The momentum of the climate system in the atmosphere and in the oceans won't be so simple to undo, and we might find it harder than we thought to ***uncook our cake*** so to speak. In her 2008 paper she shows that even if greenhouse gas emissions ceased, atmospheric temperatures may not drop significantly for 1000 years.

And the third piece of "happy" news is about us!- Global emissions of greenhouse gases are rising faster than ever. If you graph emissions per year they squiggle up the page, and off it too, smudging red ink on the desk that will be hard for future generations to scrub off. The current trajectory of emissions is following a road that the IPCC modeled as its worst case emission scenario, from a wide range of imagined journeys the world might travel. And as the developing world understandably strives to live like we do, with all the joys of endless cheap energy- stopping the fossil fuelled juggernaut of economic growth is like standing in front of an oncoming steam engine with a small red sign saying "please stop".

So reflecting on these post IPCC developments, I'd like to draw on the words of Franklin Roosevelt as he prepared Americans to respond after the great depression, ***"Only a foolish optimist can deny the dark realities of the moment"*** and indeed at his time in history we have our own "dark reality" to confront. And confront it we will, as our grandparents had to do, with all our ingenuity, creativity and human capacity to change and adapt.

So jumping forward on the calendar, ***who are the people who are going to be most at risk from climate change?*** In a very real sense "we are all in the same boat" as climate change is one of ***the truly global problem of our time***. The oceans, rains and atmosphere don't care much for national or state boundaries, and greenhouse gases don't wear dog tags requesting "please return to owner if found."

Yet by geographical bad luck or perhaps political injustice, some are more vulnerable to climate change than others-especially those living in the poorest and most overcrowded regions of the world. ***At risk are the United Nations Millennium Development Goals***, ambitious global targets to reduce poverty, to relieve hunger, to attain health for children and women and crucially to ensure access to clean water. Climate change is by no means the only obstacle to achieving these human rights for all, yet it is hard to imagine solutions that don't account for a warmer world. So in honoring the title of today's conference- the "Social and Equity Impacts of Climate Change" it's appropriate to ***remember the global health perspective***, even as we seek to achieve greater fairness in this wonderful society of ours in Australia.

And climate change is appropriately at the front of mind for ***Australians***, for ***we are not only one of the greatest emitters of greenhouse gases per capita in the world, but also perhaps, the most vulnerable developed country***. Our ancient dry land is far from the rain drenched soils from where most of our non-Aboriginal population came. Our hand to mouth relationship with water has been stretched with our hands now dry and parched by long droughts. And paradoxically we are seeing floods in the North of our country. At risk too are our natural treasures Kakadu, the Great Barrier Reef and the Alpine regions.

And what about ***Victoria***, with 95% of our electricity provided by brown coal, we are responsible for one fifth of Australia's green house gas emmissions- what can we expect from climate change? Late last year, after a five year review process, the ***Commissioner for Environmental Sustainability in Victoria*** launched a timely report- "State of the Environment" This report makes the three projections for Victoria;

"1) higher temperatures of 0.6°C to 1.2°C by 2030 with increases between 0.9°C and 3.8°C by 2070

2) flows in rivers and streams reduced by half across much of the State by 2070

3) drought frequency is likely to increase between 10% and 80% in the southern half of the State and by between 10% and 60% in the north by 2070"

So how will these changes impact on the health of Australians?

Lets begin with the obvious. **Heatwaves** are predicted to be more common and pose a direct threat to the vulnerable in the community such as the elderly, children, the sick, and people who cannot afford air conditioning. How we prepare for and adapt to more extreme heat days will be critical,- for example setting up early warning systems, buddy systems to check on those who are living alone, and providing the community with sound advice on minimizing their risk of heat stroke.

Extreme weather events such as fires, floods or extreme storms are predicted to be more common and if you happen to be someone unlucky enough to be caught up in one of these events you could be injured or worse.

And then there are the risks of **infectious diseases**. Warmer temperatures make some regions more suitable for disease vectors such as mosquitoes to extend their reach southwards raising the possibility of disease- for example, Dengue Fever, also know as Breakbone Fever, an apt name that tells you it's a disease you don't want to catch. And ironically **it may be our new affection for water tanks** that's helping these vectors spread, as mosquitoes move in to these custom made swimming pools just perfect for breeding. Warmer temperatures also increase the risk of **gastroenteritis outbreaks** for example, salmonella, campylobacter and other temperature sensitive bugs.

And then there are our neighbors many of whom are more vulnerable than we are to **sea level rise**- in Pacific Islands, and in low lying regions of Asia such as Bangladesh. Mass migration of environmental refugees would bring substantial health risks for the refugees and to the host populations to which they flee.

And then of course the elephant in the room is drought in rural and remote communities and all the physical, economic and emotional heartache that goes with living on the land without rain Living with the heat, dryness and dust is **not good for your health** increasing the risk of respiratory and allergic disorders. Getting deeper into debt because your farm is failing is **not good for your health** causing mental stress, and even mental illnesses. And having to close your

business or the local football fields is definitely ***not good for your health*** or the community as a whole. And I look forward to my esteemed colleague Professor Wiseman's presentation in which he will reflect on looking after the mental wellbeing of communities living with drought.

So finally taking a step back, in thinking about the health impacts of climate change, we will need to go beyond **simple "A causes B" type thinking** and recognize that ***systems thinking*** will be necessary to appreciate the complexity of this public health challenge. Like the human body, the climate is a complex system- non linear with innumerable feedback loops, unpredictable consequences, and thresholds beyond which instability can take hold. In this context, as you, as the social sector help to build the resilience of communities, ***their strength will lie in their flexibility and adaptability, and these characteristics will need to permeate every element of our planning for climate change.***

So returning to my medical metaphor one last time, I'm back here at the end of the bed, with a bunch of test results in my hand that I'm not too happy about- At same time I know that we will take on the challenge head on. ***We will need more than homeopathic dosages of carbon reduction, like 5%, which, like a placebo, may make us feel better but don't begin to treat the disease.***

To paraphrase Maimonides, the great Spanish physician and philosopher ***"if we are not for ourselves, then who will be, and if not now, then when?"*** How we design our cities, how we transport ourselves, how we grow our food, how we manage our water, how we work and how we play- all these things will matter, all these things are now, more than ever, public health issues. And importantly- ***how we protect our most vulnerable people***, in the midst of all this change, this will be a great test for our social services- so I really look forward to discussing this during today's excellent conference.