

Members of the Finance and Expenditure Select Committee;

My name is Alan Mark, I am the Chairperson of the Wise Response Incorporated Society, and am an Emeritus Professor in Plant Ecology at the University of Otago; and with me are:

Dr Janet Stephenson, Director of the University of Otago's Centre for Sustainability;

Dr Susan Krumdieck, a Systems Engineer and Professor of Mechanical Engineering at the University of Canterbury, and Co-founder of the Global Association for Transition Engineering; and

Mr Paul Young, Co-founder and Executive member of Generation Zero, of Wellington.

On behalf of Wise Response, we appreciate the opportunity to present a submission to this Select Committee, and elaborate on the petition and submission made to the House of Representatives on April 9 last year, with 4660 signatures, now 5036. In our 9-page submission to the Committee (to be taken as read but we would be happy to answer any questions) we are renewing a formal request of The House, based on our belief that New Zealand is now facing an increasingly difficult future, with increasing risks to its economic, environmental and social well-being, many of which arise from resource use that is starting to exceed the carrying capacity and sustainability of many of the resources that we depend on for our welfare, and particularly the perceived needs of future generations.

We share these problems with much of the world and in five major but inter-related areas. So we, as a group of well-informed New Zealanders, are formally requesting that The House; firstly initiates a Parliamentary, i.e., cross-party, agreement to undertake a National Risk Assessment of: Economic Security, Energy and Climate Security, Business Continuity, Ecological/Environmental Security and Genuine Well-being, as outlined in our petition, with an integrated, holistic approach; and, secondly, that from this Risk Assessment, develop and implement cross-party policies to avert any confirmed threats to present and particularly future generations of New Zealanders.

My colleagues will further elaborate on these issues, and I'll now pass over to Dr Janet Stephenson:

Janet Stephenson:

We are concerned that New Zealand is underprepared for a future which will be startlingly different from the past; A future in which social and economic wellbeing are facing increasing risks, many of which originate internationally.

Recent reports by three well-respected global agencies – the World Economic Forum, the United Nations, and the global insurance market Lloyd's – provide different, but equally concerning, perspectives on these risks.

The World Economic Forum produces an annual *Global Risks Report*, defining risk as ‘An uncertain event or condition that, if it occurs, can cause significant negative impact for several countries or industries within the next 10 years’. In their 2015 report, the four highest likelihood and highest impact global risks are water crises, interstate conflict, failure of climate change adaptation, and fiscal crises. In the statement that we circulated to the Select Committee previously, we included a diagram that showed these and other economic, environmental, geopolitical, societal, technological risks. The largest increases in risk likelihood and/or impact between 2014 and 2015 are interstate conflict, state collapse or crisis, spread of infectious diseases and energy price shocks.

<http://www.weforum.org/reports/global-risks-report-2015>

The United Nations *Global Assessment Report 2015* on Disaster Risk Reduction focuses solely on risks relating to the natural environment: earthquakes, cyclones, floods, tsunami, volcanic ash, drought and climate change. They include country-specific analyses of the likely costs of these events. For New Zealand, they estimate that by far the greatest risk is from storm surges and flooding, with probabilistic Annual Average Losses estimated at \$US323 million and \$US399 respectively. The report also states that global climate change is already modifying hazard levels and exacerbating disaster risks through changing temperatures, precipitation and sea levels, amongst other factors.

<http://www.preventionweb.net/english/hyogo/gar/2015/en/home/data.php?iso=NZL>

Lloyds is a major player in the global specialist insurance market. They regularly produce reports on emerging risks (and their implications for insurance). Recent reports on risks from the natural environment note the dynamic changes already evident such as increasing occurrence of hurricanes and flooding. They have also produced other reports on risks to society and security such as the impacts of global food system shocks, and the risks of business failing to adapt to a low-carbon economy.

<http://www.lloyds.com/news-and-insight/risk-insight>

Almost all of the risks identified in these reports have the potential to impact on New Zealand, either physically (e.g. storm surges, flooding, droughts) or through the economy (e.g. oil price shocks, interstate conflict, fiscal crises) or society (e.g. disease outbreaks).

In failing to identify, understand and prepare for these risks, New Zealand puts itself in a very vulnerable position. The livelihoods of current and future generations are threatened if governance focuses just on the short term, and assumes that the patterns of the past are a decent predictor of the future. But, clearly, we do not have the luxury of continuing business as usual.

This changing risk landscape means that risk is exacerbated when the short-term economic cost of taking action is emphasised over the long-term economic and social costs of not acting. The World Bank makes this point in a recent report which provides policy advice on transitioning to a zero-carbon future.

The solutions exist and are affordable, the report says, if governments take action today. It warns, however, that costs will rise the longer action is delayed. To keep global

temperatures within the 2°C limit, waiting just 15 more years and taking no action until 2030 would increase costs of transitioning by an average of 50 percent through to 2050.

The need for a long-term perspective on risk is one of the reasons we are asking for a cross-party agreement to undertake the risk assessment and to act on the findings – the issues are long-term and are relevant for much longer timeframes than a term in parliament. As the World Bank says with respect to climate change: “Getting to zero net emissions and stabilizing climate change starts with planning for the long-term future and not stopping at short-term goals.”

<http://www.worldbank.org/en/news/feature/2015/05/11/decarbonizing-development-zero-carbon-future>

Susan Krumdieck:

As well as the global risk assessments that Janet has talked about, there are plenty of example internationally of countries that have undertaken their own national-level comprehensive risk assessments.

One example is the USA’s Strategic National Risk Assessment undertaken by the Department of Homeland Security. The purpose there is to support national preparedness for threats that pose the greatest risk to the US including acts of terrorism, cyber attacks, pandemics, and catastrophic natural disasters. The assessment process has been used to support the development of collaborative thinking across all levels of government about prevention, protection, mitigation, response, and recovery.

<http://www.dhs.gov/strategic-national-risk-assessment-snra>

Ireland is another example, closer in scale to New Zealand. The Foreword of their draft Nation Risk Assessment explains: “One of the priorities of our country and our people as we move towards economic recovery is to ensure we learn from the mistakes of the past. One of those mistakes was complacency at a time of prosperity, so that serious questions were avoided. Never again should threats to our nation’s future be ignored. Never again should dissenting voices be silenced when warning of risks up ahead.” The Assessment sets out the risks (both financial and nonfinancial) which Ireland faces, including those beyond a short time horizon.

www.taoiseach.gov.ie/.../Draft_National_Risk_Assessment_2015.html

Importantly, the OECD is also encouraging nations to undertake all-hazards national risk assessments. The OECD’s recent *Recommendation on the Governance of Critical Risks* has been developed in recognition of the escalating damages that occur due to extreme events. They warn that recent events are a stark warning for economic systems that are dependent on global supply chains. The *Recommendation* proposes actions that governments can take, in collaboration with the private sector, to better assess, prevent, respond to and recover from the effects of extreme events, as well as take measures to build resilience to rebound from unanticipated events.

<http://www.oecd.org/gov/risk/recommendation-on-governance-of-critical-risks.htm>

Once a risk assessment has been undertaken, the next mission is to develop a risk management approach – formulating responses that build resilience and support strategic decision making: How are you going to react, and do you have the management systems in place that enable you to make the correct decisions whatever comes along, in time to make a difference?

The whole purpose of risk management is to enable the right people to make the right decisions at the right time. You have to have scientific measurement, monitoring and reporting, and you have to have trusted, independent experts interpreting the data. Your risk management engineers and experts create scenarios – then, they stay on the job, adjusting their approach based on real-time observations, and working with local institutions and authorities.

One way of doing this is using the Managed Adaptive Approach – “Planning in” from forward scenarios and using on-going observations of problems as they arise. These scenarios must include compounding of coincident events and problems “perfect storm scenarios”.

We need to get a good handle on the worst that could happen, we have to use scenarios to deal with the uncertainties, we need to “practice” responses and decisions, and we need to be observing and learning continuously as we go along and things change and the global issues cause local risks and problems. Engineering for the “much worst case” may provide needed measures in a forward environment of “extreme” being the new norm.

Paul Young

I’m here to represent younger generations of New Zealanders, who it’s fair to say have more skin in the game when it comes to the longer-term risks we are discussing.

The serious flooding in Wellington, Dunedin, Hokitika and Manawatu-Whanganui over the past couple of months have given New Zealand a sense of the new risk environment that may result from the more frequent and severe weather events likely to be induced by climate change. We do not yet know the full impacts but Horizons Regional Council, for example, have put an initial figure of \$120 million on the cost of flood recovery in the Manawatu-Whanganui region. Together with the Wellington, Dunedin and Hokitika events, this may not be far off the estimate in the UN *Global Assessment Report 2015* that Janet mentioned.

A risk assessment for New Zealand needs to assess the impacts of single-issue risks such as more frequent flooding, droughts and storm surges on the economy and society. But even more importantly, it is crucial to understand the implications for New Zealand of combinations of risks playing out at the same time. Here are three brief future scenarios based on realistic risks identified by the global reports referred to previously:

Scenario 1: Increasing numbers of climate refugees on boats are attempting to enter New Zealand as a result of sea level rise impacting their low-lying nations. At the same

time there is a significant outbreak of highly infectious disease. How should New Zealand respond?

Scenario 2: Inter-state conflict with oil producing nations leads to an oil price shock. At the same time, New Zealand's long-running favourable exchange rate drops significantly. The cost of petrol and diesel would skyrocket under this scenario. What options are there to reduce the significant impact on New Zealand's economic activity?

Scenario 3: The increasing costs of more extreme weather events create a significant negative impact on regional and national economies. However, low-lying infrastructure such as roads, sewerage systems, storm-water systems need investment to future-proof them against sea level rise and extreme weather events. Where is the money to come from?

The last example in particular highlights the intergenerational dimensions at play. Being unprepared for risks, and failing to take appropriate near-term actions to mitigate these, could see future generations in charge overwhelmed and unable to muster an effective response as multiple risks converge. As in medicine, prevention will invariably be better than cure. And as per the Government's approach to social welfare, early intervention delivers the greatest value to society.

Speaking for my peers, my experience is that a great many are deeply concerned, fearful even, about the future we will inherit in the face of escalating risks such as climate change. Many are even losing faith in our political institutions to deal with these threats at all.

To address this, we need to see our leaders working together to effectively address the risks facing our society. Heeding Wise Response's request for a National Risk Assessment would be an instrumental first step in the right direction.

Alan Mark:

In conclusion; we trust we have convinced the Committee of the urgent need for such a risk assessment and we request that the Committee initiate its own specific enquiry in to the subject matter of the petition, perhaps assisted by the Auditor General and/or the PCE, and/or the Prime Minister's Science Adviser, Sir Peter Gluckman, or the Committee may refer the petition to The House with a recommendation for appropriate action.

We now welcome questions and comments.